3.4 CULTURAL RESOURCES

This section describes the cultural resources present or potentially present on the project site and evaluates the potential effects of development of the proposed project on those resources. Data used in preparation of this section include a Phase I Cultural Resources Investigation prepared for the project site, which includes a standard records check from the California Historic Resources Information System (CHRIS) South Central Coastal Information Center; a cultural resources field survey conducted on August 31, 2001; and a sacred lands file check from the Native American Heritage Commission (NAHC). Full bibliographic entries for all reference materials are provided in Section 3.4.5 (References).

3.4.1 Environmental Setting

Paleontology

As described further in Subsection 3.5.1 (Geology and Soils, Existing Conditions), the rock units that underlie the project site are igneous (i.e., volcanic) granitic and dioritic units, which do not yield fossils. The soils that overlie the rock units are generally thin and were formed by the weathering of the rocks beneath. Some alluvium is present in the valley areas of the site; however, the alluvium is also generally formed by the weathering and decomposition of the underlying rock units. Fossils would not, therefore, be found in the soils on the project site.

Culture History

The current project area is located in an ethnographic area associated with the Gabrielino (Tongva) of the Los Angeles, San Gabriel, Rio Hondo, and Santa Ana River drainage (roughly Los Angeles County of today; McCawley 1996:23; Kroeber 1925:621; and Bean and Smith 1978:538). The Gabrielino are known as a society identified by Late Prehistoric/Protohistoric ethnographic records and archaeological data identifying Late Prehistoric occupation of Southern California. Changes identified between the earlier periods and the Late Prehistoric are evident in the archaeological record and in variations seen in technologies, social/community patterns, and, in some cases, population estimates. Populations preceding the Gabrielino, while related, can be archaeologically identified as separate or variant forms of the Gabrielino culture.

References to the "Gabrielino" initiated from the direct association between Native populations of the San Gabriel Valley and the Mission San Gabriel de Archangel. The Mission was originally located in the Whittier Narrows, but relocated shortly after its founding because of unstable ground along the Rio Hondo/San Gabriel River channels. The ethnographic boundaries for the Gabrielino are presented by Bean and Smith (1978:538) and refined by McCawley (1996). Early studies of the Gabrielino (see Smith and Teggart 1909; Benedict 1924; Bolton 1927; Robinson 1939; and Kroeber 1925) emphasized anthropological/ethnographic studies, while more recent investigations have relied on archaeological data (e.g., Drover 1980; Koerper, Drover, and Langenwalter 1983; McKenna 1985 and 1986; Hudson 1969 and 1971; Rice and Cottrell 1976; Wallace 1955; Warren 1968; Greenwood 1978; and Mason et al. 1994). The majority of data currently available to archaeologists can be referenced in publications of the Society for California Archaeology (1990 to present).

The Mission San Gabriel serviced the entire San Gabriel Valley, ranging from the coast to the San Gabriel/San Bernardino Mountains and from northern Los Angeles County to just north of San Juan Capistrano. The northern and eastern extent of their territory included the San Gabriel and San Bernardino Mountains and areas generally associated with the Serrano of the mountain and desert regions.

The Gabrielino utilized numerous plants and animals for food, shelter, and medicines. Citing Kroeber (1976:649-650), they used seeds most often, followed by foliage, shoots, fruits, and berries. Mountain shrubs, ash, elder, and willow were used for shelters and tool materials (e.g., bows). Over 20 plants were used regularly for medicinal purposes.

Fauna used as food sources included deer, rabbits, wood rats, squirrels, quail, and ducks. Animals specifically not used were dogs, coyotes, bears, tree squirrels, pigeons, doves, mud hens, eagles, buzzards, ravens, lizards, frogs, and turtles (Kroeber 1976:652). Along the coast, the Gabrielino regularly exploited the wetlands and ocean resources.

The Gabrielino used numerous styles of bows, bedrock mortars, portable mortars, pipes, chisels, metates, manos, and various forms of chipped stone tools. Prior to the establishment of the Mission system, populations tended to live in larger villages with a series of "daughter" or "satellite" sites (limited activity areas) with lesser populations. Seasonal migration was practiced for the exploitation of resources and protection from seasonal weather conditions (Scientific Resource Surveys 1979:7). Habitation structures were constructed of branches, grasses, and mud, and interior hearths were used for heat. Cooking was generally conducted outdoors, with hearths generally associated with food preparation.

Archaeological data and correlations with ethnographic data have resulted in the determination of a generalized chronology for prehistoric Southern California. The proposed La Cañada Flintridge project area is located within the inland areas of Gabrielino territory, while chronological data has emphasized coastal occupations. Nonetheless, current archaeological data has indicated that the coastal chronological data derived by Wallace (1955), Warren (1968), and later by Koerper and Drover (1983) can be applied to this region (Mason 1984; McKenna 1986). The coastal chronology generally accepted for Southern California has been as follows:

- **Early Man Horizon:** Pre-dating 6,000 B.C.; is characterized by the presence of large projectile points and scrapers, suggesting a reliance on hunting rather than gathering
- **Milling Stone Horizon:** 6,000 to 1,000 B.C.; characterized by the presence of hand stones, milling stones, choppers, and scraper planes; tools associated with seed gathering and shell fish processing with limited hunting activities; evidence of a major shift in the exploitation of natural resources
- **Intermediate Horizon:** 1,000 B.C to A.D. 750; reflects the transitional period between the Milling Stone and the Late Prehistoric Horizons; little is known of this time period, but evidence suggests interactions with outside groups and a shift in material culture reflecting this contact
- **Late Prehistoric Horizon:** A.D. 750 to European Contact; characterized by the presence of small projectile points; use of the bow and arrow; steatite containers and trade items, asphaltum; cremations; grave goods; mortars and pestles; and bedrock mortars

Recent investigation of sites in the Newport Bay/Irvine area of Orange County (Mason and Peterson 1994) has yielded significant data resulting in refinements of the coastal chronological sequences. Mason and Peterson's

conclusions were based on the radiocarbon dates from 326 samples representing 31 archaeological sites or cultural contexts. Summarizing their results, Mason and Peterson (1994:55) found that the majority of sites were occupied during the Milling Stone (Horizon) period or the Late Prehistoric (Horizon) period "…without much overlap…." Only four sites yielded results suggesting occupation during more than one cultural period (e.g., CA-ORA-64). In a few instances, dates suggested occupation during the Intermediate (Horizon) period. Mixtures of dates appeared in limited areas and could be directly associated with areas of agricultural activities.

The frequency distribution of radiocarbon dates from the Mason and Peterson investigations were grouped in blocks of fifty year intervals and yielded a range from of dates from 200 B.P. (before present) to 9280 B.P. (dates from CA-ORA-246 indicate occupation of the Newport Bay area as early as the Paleo-Coastal period or (Early Man Horizon). Mason and Peterson's conclusions (1994:57) do not necessarily change the basic chronology, but distinguish more individualistic periods of occupation that are not necessarily evident in the analysis of an artifact assemblage. Mason and Peterson's refined chronology is presented in Table 3.4-1.

Table 3.4-1 Refined Coastal Chronology As Defined by Mason and Peterson (1994)

Cultural Horizons	*Defined 1986*	*Cultural Periods*	*Redefined 1994*	*Temporal Correlations*
Paleo-Coastal	Pre-6000 B.C.	Paleo-Coastal	Pre-8000 B.P.	Pre-6000 B.C.
Milling Stone	6000 to 1000 B.C.	Milling Stone 1	8000 to 5800 B.P.	6000 to 3800 B.C.
		Milling Stone 2	5800 to 4650 B.P.	3800 to 2650 B.C.
		Milling Stone 3	4650 to 3000 B.P.	2650 to 1000 B.C.
Intermediate	1000 B.C. to A.D. 750	Intermediate	3000 to 1350 B.P.	1000 B.C. to A.D. 650
Late Prehistoric	A.D. 750 to European Contact	Late Prehistoric 1	1350 to 650 B.P.	A.D. 650 to 1350
		Late Prehistoric 2	650 to 200 B.P.	A.D. 1350 to Contact

Source: After Mason and Peterson, 1994

The Mason and Peterson discussions emphasize that the early definitions of "horizons" were based on artifact assemblages, and these correlations have not been altered by the redefined chronology. Through the application of radiocarbon dating and comparative site analyses, studies have resulted in identifying relatively discrete subdivisions within the Milling Stone and Late Prehistoric sites. Variations appear within these two horizons/periods, which can be explained by temporally discrete occupations. Future studies of sites yielding statistically valid artifact assemblages and radiocarbon samples can be conducted to further the understanding of Native American activities throughout Southern California. These studies can also assist in understanding the relative lack of data for the Intermediate Horizon/period.

The earliest known records of European contact with Southern California Native Americans date to the mid-1500s, representing the early explorations of the Spanish. These explorations resulted in the identification of populations from the ships but did not include direct contact. Personal contact was not made until the 1770s,

when Father Garces traversed the Mojave Desert and entered coastal Southern California through the Cajon Pass (Walker 1986).

In the 1770s, the Spanish padres, under the direction of Junipero Serra, began the process of establishing a series of missions throughout Alta California, as California was then known. The project area is within the boundaries of lands historically held by the Mission San Gabriel de Archangel. The Mission continued to hold these large tracts until the Mexican government declared its independence from Spain and issued orders for the secularization of the missions (ca. 1824). By 1833–34, the majority of mission lands were taken from the Catholic Church and granted to individuals who had served as Spanish or Mexican soldiers, settlers, financiers, etc. The Mexican government hoped to initiate a pattern of settlement in Alta California by relocating populations from Mexican settlements to California settlements (Hanna 1951; McWilliams 1973; Dumke 1944; and Scott 1977).

In this case, the project area is located with the historic mission holdings but also as portions of the historic Rancho San Rafael and Rancho La Cañada. Avina (1932) and Beck and Haase (1977) identify portions of the current project area as being within the historic rancho granted to Don Jose Maria Verdugo as Rancho San Rafael and the first of the Spanish Land Grants in Alta California. Governor Fages granted the land as a provisional grant in 1784 and was confirmed by Borica in 1798. Verdugo settled on the property and spent many years in conflict with the Mission San Gabriel, which also claimed the holdings. Avina states:

> These rancho grants were bitterly opposed by the friars, who accused the grantees, and often with justification, of being lazy and detrimental to the welfare of the neophytes [Christianized Native Americans].

The Rancho San Rafael remained undivided until 1860, when descendants of Jose Maria Verdugo sold a portion of the property. Eventually, the Rancho San Rafael was subdivided into the Rancho San Rafael (east) and the Rancho La Cañada (west). Between 1860 and 1878, Rancho La Cañada was owned by A.B. Chapman and Andrew Glassel (Dougherty 1993:88). The Rancho La Cañada (5,832 acres) was purchased by Dr. J. L. Lanterman and Col. A. W. Williams, both of Lansing, Michigan, who immediately subdivided the property into 46 individual parcels: 23 parcels north of "Michigan Avenue" (now Foothill Boulevard) and 23 parcels south of the Boulevard (McKenna 1993; Singer et al. 1992:6; Beck and Haase 1977; Oberbeck 1938). Michigan Avenue was officially changed to "Foothill Boulevard" in 1916, when the route became a California State highway.

The Lanterman and Williams families initially held the Rancho La Cañada as undivided shares. However, Jacob Lanterman eventually sued his partner to subdivide their holdings and allow himself the authority to sell parcels unilaterally. Williams died before the suit was settled. Jacob Lanterman died in 1908.

The property north of Rancho La Cañada was acquired by William D. Gould (no relation to Eugene Henry Gould) in 1873 (approximately 1,100 acres). Oberbeck (1938:20) states:

> Gould [A]venue, north from Foothill boulevard, was the entrance to the ranch and the eucalyptus trees along this drive were planted for Mr. Gould by William Slutman, over forty years ago [ca. 1890s]. Mr. Gould made a "Deed of Gift" of Gould Avenue to the County of Los Angeles with the agreement that the eucalyptus trees be allowed to remain.

The La Cañada Post Office was established in November 1884, and the first School District was established by 1885. By 1887, the population of La Cañada reached 150, with the first school opening in 1889. In 1892, the

San Gabriel Timber Reserve, consisting of 555,000 acres, was created by President Benjamin Harrison (the first National Forest Reserve in the State of California) and eventually became the Angeles National Forest in 1907. The La Cañada Improvement Association was established in 1912 and a branch of the Los Angeles County Library was established in 1913. Also in 1913, Southern California Edison set the first power poles in La Cañada.

Sometime prior to 1916, U.S. Senator Frank P. Flint purchased a portion of the original Rancho La Cañada and "Flintridge" was named for the Senator in 1920, when he initiated development of 1,700 acres located south of Foothill Boulevard. Southern California Gas serviced the area by 1924, and the Flintridge Hotel was completed in 1928. The Hotel failed during The Depression and, in 1931, the Archdiocese of Los Angeles purchased the property and established a girl's boarding school run by Dominican nuns. The complex became part of the Flintridge Sacred Heart Academy. The Flintridge Country Club was adapted for use as St. Francis High School.

Although subdivided early, development within the Rancho La Cañada was relatively sparse well into the twentieth century. Settlement was concentrated in the western portion of the rancho property (west of Commonwealth Avenue) or south of Michigan/Foothill Boulevard. Children were locally schooled through grade school, but high school students were transported to Glendale or Pasadena well into the 1950s. Public high school education in La Cañada Flintridge was not available until after 1963.

The Foothill Freeway (210) was completed in 1972 (Perry and Parcher 1974:144). The majority of urban development of the area took place after World War II. Despite relatively late wide-scale development of La Cañada Flintridge, 57 historical structures have been identified by the local historical society. Additionally, the City of La Cañada Flintridge lists a number of historic sites available for visiting.

The listing for California Historical Landmarks (1990) identified no properties within La Cañada Flintridge. California Points of Historic Interest, but does, however, include CA-LAN-004, the Descanso Gardens (south of Foothill Boulevard), and CA-LAN-007, the Church of the Lighted Window (United Church of Christ) on Foothill Boulevard. Since the Descanso Gardens complex is listed on the National Register of Historic Places, it must be presumed to be eligible for listing on the California State Historic Resources Inventory. Overall, the City resources are dominated by locally significant sites and not necessarily sites recognized at the federal or State level.

Definitions of Historical Resources

The National Historic Preservation Act established the National Register of Historic Places (NRHP) to recognize resources associated with the country's history and heritage. Structures and features must usually be at least 50 years old to be considered for listing on the NRHP, barring exceptional circumstances. Criteria for listing on the NRHP, which are set forth in Title 26, Part 63 of the Code of Federal Regulations (36 CFR Part 63), are significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that are *(A)* associated with events that have made a significant contribution to the broad patterns of our history; *(B)* associated with the lives of persons significant in our past; *(C)* embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction; or

(D) have yielded, or may be likely to yield, information important in prehistory or history. Criterion D is usually reserved for archaeological and paleontological resources.

The California Register of Historical Resources (CRHR) was created to identify resources deemed worthy of preservation on a State level and was modeled closely after the NRHP. The criteria are nearly identical to those of the NRHP but focus upon resources of statewide, rather than national, significance. The CRHR automatically includes resources listed on the NRHP.

Cultural Resources Identified on the Project Site

Sacred Lands File Check

A sacred lands file check from the California Native American Heritage Commission was completed by McKenna et al. for the project site. The file check did not indicate the presence of Native American cultural resources in the immediate project area, and efforts by McKenna *et al*. to contact the appropriate Native American representatives did not yield additional information regarding these resources.

Historic Resources Records Check/Literature Survey

An archaeological records check was based on data compiled from a Citywide overview completed through the South Central Coastal Information Center of the California Historic Resources Information System (CHRIS), formerly located at the University of California, Los Angeles and now located at the California State University, Fullerton. In addition to the records check, McKenna *et al*. also conducted background research, including the examination of historic maps, and research at the City and the local historical society.

These investigations resulted in the identification of numerous properties within the City that are considered locally significant resources. However, none of these is located within the current area of investigation. The only evidence of potential historical remains involved the presence of overgrown road alignments that have been determined to be of modern origin.

Field Survey

Two archaeologists from McKenna *et al*. completed an intensive survey of the project site on August 31, 2001. The survey yielded no evidence of prehistoric or historic archaeological resources. However, ground visibility was generally poor, and the slopes on several areas of the site made a standard pedestrian survey impossible. The possibility exists of encountering previously unidentified archaeological resources during site preparation and ground-disturbing activities.

3.4.2 Regulatory Framework

The treatment of cultural resources is governed by federal, State, and local laws and guidelines. There are specific criteria for determining whether prehistoric and historic sites or objects are significant and/or protected by law. Federal and State significance criteria generally focus on the resource's integrity and uniqueness, its relationship to

similar resources, and its potential to contribute important information to scholarly research. Some resources that do not meet federal significance criteria may be considered significant by State criteria. The laws and regulation seek to mitigate impacts on significant prehistoric or historic resources. The federal, State, and local laws and guidelines for protecting historic resources are summarized below.

Federal

The National Historic Preservation Act of 1966

The National Historic Preservation Act of 1966 established the NRHP as the official federal list of cultural resources that have been nominated by State Offices for their historical significance at the local, State, or national level. Properties listed in the NRHP, or "determined eligible" for listing, must meet certain criteria for historical significance and possess integrity of form, location, and setting. Significance is determined by four aspects of American history or prehistory recognized by the NRHP Criteria, which are listed above under "Definitions of Historical Resources." Eligible properties must meet at least one of the criteria and exhibit integrity, measured by the degree to which the resource retains its historical properties and conveys its historical character, the degree to which the original fabric has been retained, and the reversibility of changes to the property.

State

The California Register of Historic Resources (P.R.C. Section 5020 et seq.)

State law also protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources in CEQA documents. A cultural resource is an important historical resource if it meets any of the criteria found in Section 15064.5(a) of the CEQA Guidelines. These criteria are nearly identical to those for the NRHP, which are listed above under "Definitions of Historical Resources."

The State Historic Preservation Office (SHPO) maintains the CRHR. Properties listed, or formally designated eligible for listing, on the NRHP are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Senate Bill 297 (1982)

This bill addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Native American Heritage Commission to resolve disputes regarding the disposition of such remains. It has been incorporated into Section 15064.5(e) of the State CEQA Guidelines.

3.4.3 Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2002 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on cultural resources if it would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature
- Disturb any human remains, including those interred outside of formal cemeteries

3.4.4 Impacts

■ Less-Than-Significant Impacts

Historical Resource

As described above, no historical structures or features have been identified on the project site. Implementation of the proposed project would not, therefore, result in the demolition or alteration of a historical resource as defined under Section 15064.5 of the CEQA Guidelines. This impact would, therefore, be less than significant, and no mitigation would is required.

Paleontological Resources

As described above, the soils and rock units underlying the project site are not fossil-bearing, and fossils are not anticipated to be present on the project site. Therefore, ground-disturbing activities associated with project implementation would not result in damage to or destruction of a unique paleontological resource or associated unique geologic feature. This impact would, therefore, be considered less than significant.

■ Potentially Significant

Impact CR-1 **Construction of the proposed project could result in a substantial adverse change in the significance of an archaeological resource.**

As described above, no archaeological resources were identified during the reconnaissance survey completed for the project site. However, site visibility was generally poor, and several areas of the project site were inaccessible. Additionally, as identified in the cultural resources technical report prepared for the project, several archaeological resources have been identified throughout the City and in the vicinity of the site. Therefore, the possibility exists of encountering previously unidentified archaeological resources during site preparation or grading activities, and damage to or destruction of these resources could potentially occur. Such resources must, prior to evaluation by a qualified archaeologist, be considered potential historical resources, as defined above or as unique archaeological

resources (as defined by Section 21083.2 of CEQA). Consequently, ground-disturbing activities associated with project implementation could potentially result in a substantial adverse change in the significance of an archaeological resource, which would constitute a potentially significant impact. However, implementation of Mitigation Measures CR-1.1 and CR-1.2 would reduce this impact to a less-than-significant level by minimizing the possibility of damage to such resources, as well as by ensuring that any archaeological resources encountered are properly evaluated and, if necessary, recovered or protected, as appropriate.

Impact CR-2 **Construction of the proposed project could result in the disturbance of human remains, including those interred outside of formal cemeteries. This is considered a *less-than-significant* impact.**

As described above in Impact CR-1, ground-disturbing activities associated with implementation of the proposed project could potentially result in damage to or destruction of archaeological resources. These archaeological resources could include human burials, particularly prehistoric Native American burials, which may have occurred outside of formal cemeteries. This impact is, therefore, potentially significant. However, implementation of Mitigation Measure CR-2 would reduce this impact to a less-than-significant level by ensuring the appropriate treatment and disposition of human remains if any are encountered.

3.4.5 Mitigation Measures and Residual Impacts

MM CR-1.1 The applicant shall retain a qualified professional archaeological monitor to be present during grading, trenching, and other excavation on the project site.

MM CR-1.2 If an archaeological site or feature is uncovered during site preparation activities, all construction activities within 50 feet of the find shall cease until the archaeological monitor has assessed the significance of the find and implemented appropriate measures for the collection or protection of the find.

The archaeologist shall first determine whether an archaeological resource uncovered during construction is a "unique archaeological resource" under Public Resources Code Section 21083.2(g). If the archaeological resource is determined to be a "unique archaeological resource," the archaeologist shall formulate a mitigation plan in consultation with the City that satisfies the requirements of Section 21083.2 of the Public Resource Code. If the archaeologist determines that the archaeological resource is not a unique archaeological resource, the archaeologist may record the site and submit the recordation form to the California Historic Resources Information System South Central Coastal Information Center.

The archaeologist shall prepare a report of the results of any study prepared as part of a mitigation plan, following accepted professional practice. Copies of the report shall be submitted to the City and to the California Historic Resources Information System South Central Coastal Information Center. Copies of the report with site-specific information expunged shall also be provided to the La Cañada Flintridge Historical Society.

MM CR-2 In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately, the area of the find shall be protected,

and the applicant immediately shall notify the City and the Los Angeles County Coroner of the find and comply with the provisions of P.R.C. Section 5097 with respect to Native American involvement, burial treatment, and re-burial, if necessary.

3.4.6 Cumulative Impacts

As described above in Impact CR-1, the proposed project site does not contain any known archaeological or paleontological resources. Development of the proposed project is not anticipated to affect any paleontological resources because the rock units beneath the project site do not preserve animal remains or form fossils; consequently, the project is not anticipated to contribute to any cumulative effect on paleontological resources, and this impact would be less than significant.

The proposed project would not, as described above, affect any known archaeological resources, and the implementation of the proposed project would include Mitigation Measures CR-1.1 and CR-1.2, which would ensure identification and appropriate treatment of any previously unknown resources if any are uncovered during grading or excavation. The proposed project would not, therefore, have a significant effect on archaeological resources in the City of La Cañada Flintridge and is not anticipated, in combination with related development projects, to contribute to a cumulative effect upon such resources in the City. The cumulative impact of the proposed project upon archaeological resources would be less than significant

3.4.7 References

La Cañada Flintridge, City of. 1980. *Comprehensive General Plan*. Environmental Resource Management Element. Adopted March 1980.

McKenna *et al.* 2001. *A Phase I Cultural Resources Investigation of the Parker and Johnson Property in La Cañada Flintridge Area, Los Angeles County, California*, September.

3.5 GEOLOGY AND SOILS

Soils, geology and seismicity conditions are important aspects of all development projects in the Los Angeles Basin. Although most projects have little or no effect on geology, any project involving grading will have some effect on soils and topography; and all will be affected by certain geologic events, such as earthquakes and landslides. The purposes of reviewing the geology and soils information of any project are (1) to identify potentially hazardous conditions; (2) to identify potential impacts of the proposed project; and (3) to provide guidance to reduce, eliminate, or avoid these conditions and impacts.

The City of La Cañada Flintridge's Initial Study determined that the Tentative Tract Map 53647 and Variance 02-10 project had the potential to cause potentially significant impacts in matters of seismically induced slope instability, erosion, expansive soils, grading, and soil suitability for septic systems. These issues were to be discussed in an Environmental Impact Report (EIR). The following analysis explores those potentially significant impacts and identifies opportunities to reduce, eliminate, or avoid them. This section of the EIR discusses the regional geologic and seismic characteristics influencing the project area; the local soils, slope, and erosion conditions at the project site; the potential effects of ground disruption (landsliding, erosion, grading) on the project; and the potential effects of the project on human safety. Fault rupture, strong seismic groundshaking, liquefaction, volcanism, tsunami/seiche, and mineral resource issues would have no effects on, or be affected by, the Flintridge Properties Tract Map 53647 and Variance 02-10 project.

The primary sources of information on which the analysis in this section is based include the geotechnical report prepared by The J. Byer Group, Inc. in 2001; site observations by EIP Associates in 2002; regional studies published by federal, state and local agencies (United States Geological Survey, California Geological Survey [formerly the California Division of Mines and Geology], City of La Cañada Flintridge) dealing with geotechnical conditions in the project area; maps, tables, and text in the Seismic and Safety Element of the City of La Cañada Flintridge General Plan; and current and historical soil surveys for Los Angeles County and the Pasadena area, all of which are referenced in the endnotes.

This section of the EIR includes a description of existing conditions in the area of the proposed project (Environmental Setting); the Regulatory Context in which the decision-making process would occur; Thresholds of Significance for determining whether the project would cause significant impacts; impacts of the project; mitigation measures to reduce, eliminate, or avoid the identified impacts; and the level of significance of the impact after mitigation.

3.5.1 Environmental Setting

Regional Characteristics

Geology

The City of La Cañada Flintridge is on the northern rim of the Los Angeles Basin. The regional geologic framework of the Los Angeles Basin area can be understood through the theory of plate tectonics. Earth's mantle is composed of several large plates that move relative to each other and are bounded by major fault zones. The San Andreas Fault zone, about 20 miles northeast of the project area, is the boundary between the Pacific Plate, on the west side of the zone, and the North American Plate on the east side. One of the results of the movement of these plates is the regional rock deformation that is expressed in the general northwest trend of valleys and ridges in the Los Angeles Basin. All of the geologic formations in the Los Angeles Basin are on the Pacific plate (Oakeshott, 1978). Furthermore, because no known active faults or fault traces are located on the project site, fault rupture is not anticipated and further analysis is not required.

Seismicity

The project site is in the vicinity of a major asperity (bend) in the San Andreas Fault. This bend is a noteworthy zone of north-south compression that formed the Transverse Ranges, represented locally by the San Gabriel Mountains. The principal active faults in the vicinity of this compression zone on which there is evidence of displacement during Holocene time (the last 11,000 years), include the San Andreas, San Jacinto, Whittier, Elsinore, Newport-Inglewood, Santa Monica–Hollywood, Cucamonga, Palos Verdes, and Raymond Faults, all of which are capable of causing large earthquakes. There also are buried, low-angle, thrust faults that do not rupture the ground surface, known as blind thrusts, such as the Elysian Park and Compton thrusts. Table 3.5-1 contains the estimated maximum parameters for earthquakes on three nearby known active faults that would cause the highest level of ground shaking affecting the project vicinity. Terms that may be unfamiliar to the general public are defined in the glossary at the end of this section.

Table 3.5-1 Estimated Maximum Parameters for Three Major Known Faults Affecting the Project Area

Fault	*Sierra Madre*	*Raymond*	*Elysian Park*
Moment Magnitude[1]	7.0	6.5	6.7
Maximum Intensity (MMI)[2]	XI	XI	XI
Peak Horizontal Accelerations in Rock and Stiff Soil (Gravity)[3]	> 0.7	> 0.7	> 0.6
Approximate Distance and Direction from Project Site to Fault (Miles)	1.9 E	1.9 S	4.8 S

1. For the purposes of describing the size of the design (or scenario) earthquake of a particular fault segment, **moment magnitude** (M_w) of the characteristic earthquake for that segment has replaced the concept of a maximum credible earthquake of a particular Richter magnitude. This has become necessary because the Richter Scale "saturates" at the higher magnitudes; that is, the Richter scale has difficulty differentiating the size of earthquakes above magnitude 7.5. The M_w scale is proportional to the area of the fault surface that has slipped, and thus, is directly related to the length of the fault segment. Although the numbers appear lower than the traditional Richter magnitudes, they convey more precise (and more useable) information to geologic and structural engineers.
2. Estimated Modified Mercalli Intensity damage level based on relationships developed by Perkins and Boatwright, 1995, or Richter, 1958 (San Andreas fault only).
3. Estimates based on relationships developed by Seed and Idriss 1972, Joyner and Boore 1981, Campbell and Sadigh 1983.

Source: EIP Associates

These and other major faults have been the sources of at least 485 M_w•4.0 earthquakes in the area during the past 200 years, and are expected to be the sources of future earthquakes (Jennings, 1994; J. Byer Group, 2001). Even though no known active fault traces pass through the project site, the City requires that structures and facilities be designed to withstand the anticipated effects of seismic vibration from distant, as well as nearby, sources (La Cañada Flintridge, 1980). Earthquakes of the magnitude produced by these faults are sufficient to create ground accelerations in bedrock and in stiff unconsolidated sediments severe enough to cause major damage to structures and foundations not designed specifically to resist the lateral forces generated by earthquakes, to underground utility lines not designed with sufficient flexibility to accommodate expected seismic ground motion, and to potentially unstable slopes known or suspected to exist in the vicinity of the project site (Borderdt 1975, Steinbrugge 1987, California Geological Survey 1999).

Project Area Characteristics

Topography

Elevations at the project site range from about 1,340 feet above mean sea level along Haverstock Court and Saint Katherine Drive (near the access points) to about 1,580 feet above mean sea level on the highest ridge in the proposed open space areas. Field inspections indicate that slopes in the project area range from 1:1 to 3:1. There are no unique geologic features on the project site, but the knoll in the center of the site (near the east edge of Lot 18) is designated as a Significant Land Form by the City. The site is in a steep hillside area where land alteration is regulated by the City's Hillside Development Ordinance. Construction and occupation of the project would be required to follow standard engineering techniques described in the City's Building Code, and the special requirements of the Hillside Development Ordinance policies.

Soils

Soil materials on the site consist of at least 7.5 feet of sandy gravel fill along Monarch Drive and in Lot 14 near Palmerstone Drive; up to 2 feet of silty sand of the Vista-Amargosa soil association on most of the hillsides; and about 4 feet of gravelly sand alluvium in the bottoms of the canyons (United States Department of Agriculture, 1977; J. Byer Group, 2001).

Bedrock

Bedrock mapped throughout the project site is a granitic unit that is part of the San Rafael Hills, named the Wilson Diorite, or quartz diorite. Wilson Diorite is a crystalline granitic basement formation composed of massive to slightly foliated diorite that may be fresh in appearance, but is most often highly weathered.

Potential Geo-Seismic Hazards

The project area contains moderate-risk and, potentially, high-risk geo-seismic hazard areas. The proximity of La Cañada Flintridge to major earthquake faults, the steepness of the slopes, and the fact that some of the proposed roads, lots, and fill slopes cross areas that are underlain by alluvial, places the project vicinity among the locations

that are expected to experience noticeable effects from intense groundshaking caused by large earthquakes on the major regional faults. According to the State's Seismic Hazards Zone Map some slopes in the on the project site are susceptible to earthquake-induced landsliding.

The project site is in an area of low slope stability. Earthflows or mudslides (landslides with high water content) are fairly common in where steep slopes, shallow soils overlying some impervious surface (such as granitic bedrock), and high groundwater levels (from rain, irrigation or flooding) combine to saturated the soils, thereby creating a heavy, lubricated, fluid-like mass that moves downhill. Slopes in this type of terrain that are susceptible to earthquake-induced landsliding also may be susceptible to mudslides.

Groundshaking hazards in the project area are classified by the California Geological Survey as "Moderate" because of the thinness of unconsolidated alluvium (generally less than 5 feet) and the lack of shallow groundwater (except in the middle of the rainy season). Peak horizontal ground acceleration in the bedrock and alluvial soils in the area is expected to be in excess of 0.7 g (70 percent of the force of gravity). This acceleration level means the standards for La Cañada Flintridge's Building Code Seismic Zone 4 would be the minimum requirements for site design and would need to be applied on a site-specific basis to ensure appropriate seismic-resistant construction.

Subsidence is the gradual downward settling of the land surface with little or no horizontal movement. It is caused by many different factors. Extracting large fluid volumes (water, oil, and gas) from thick layers of poorly consolidated sediments is a principal cause of surface subsidence. Because the thickness of alluvial sediments and residual soils in the area is limited by shallow bedrock and no major groundwater production fields are in or near the project site, the potential for surface subsidence associated with fluid extraction is very low.

Settlement may occur in a project area if it contains soils with high clay content, which can be susceptible to expansion and possibly dynamic consolidation. Settlement and consolidation can, in turn, cause surface subsidence. The alluvium in the drainages on the project sit generally consists of a mix of fine- and coarse-grained material and is not especially susceptible to settlement.

Liquefaction potential is very low because of the mixture of coarse and fine sediments in the alluvial and residual soil areas. Bedrock is not subject to liquefaction.

3.5.2 Regulatory Framework

State Policies and Regulations

The major State legislation regarding earthquake fault zones is the *Alquist-Priolo Earthquake Fault Zoning Act.* In 1972, the State of California began delineating Earthquake Fault Zones (called Special Studies Zones prior to 1994) around active and potentially active faults to reduce fault-rupture risks to structures for human occupancy (California Public Resources Code). The project site is not crossed by Alquist-Priolo Earthquake Fault Zones, nor do any Zones trend toward the site (Hart, 1997, 1999, 2002).

The major State legislation regarding mineral resource zones is the *Surface Mining and Reclamation Act of 1975*. Part of the purpose of the act is to classify mineral resources in the State and to transmit the information to local governments that regulate land use in each region of the State. The California Geological Survey (1982) has identified Devils Gate Reservoir, about 0.7 mile northeast of the project site as an area that may contains mineral resources of sand, gravel, and stone. The Mineral Resource Zone does not impinge on the project site.

The major State legislation regarding other seismically related hazards is the *Seismic Hazards Mapping Act*. In 1991 the California Legislature provided for a statewide seismic hazard mapping and technical advisory program to assist cities and counties in fulfilling their responsibilities for protecting the public health and safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failure and other seismic hazards caused by earthquakes. The project site contains State of California Seismic Hazard Zones for earthquake-induced landslides in Lots 4, 5, 7, 10, 11, and 18 (Kudrave Architects, 2002; California Geological Survey, 1999).

City of La Cañada Flintridge Policies and Regulations

The major City regulations regarding geo-seismic hazards are contained in Title 7 Buildings and Construction, Chapter 7.08 Building Code, of *La Cañada Flintridge Municipal Code*. La Cañada Flintridge Building Code applies to public buildings and a large percentage of private buildings in the City. It is based on the current Los Angeles County Building Code (which is, in turn, based on the California Building Code), but contains Additions, Amendments, and Repeals that are specific to building conditions and structural requirements in the City of La Cañada Flintridge. Additionally, Chapter 11.35 Hillside Development regulates construction in districts where slopes are greater than 15 percent, and provides minimum standards for permitting such construction. The project site is in California Building Code Seismic Zone 4, as is about 45 percent of the State, and consequently is required by La Cañada Flintridge Building Code to meet the most stringent seismic-resistant construction standards. The project site contains slopes steeper than 15 percent, some of which would be modified by grading, and consequently would comply with the regulations of Chapter 11.35 Hillside Development. However, the project as proposed includes Variance 02-10 which would allow smaller lot sizes than those stipulated to by Chapter 11.35.

The *City of La Cañada Flintridge General Plan* contains goals, objectives, implementation strategies, and policies that are intended to ensure the safety of the residents and visitors to La Cañada Flintridge in the event of a major earthquake. Hillside Development, Seismicity, and Soils Policies apply to the project site. An analysis of the consistency of this proposed project with the City's General Plan can be found in Section 3.08 Land Use, of this EIR.

3.5.3 Thresholds of Significance

The proposed project would have a significant impact on geology and soils if it would

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - › Strong seismic ground shaking

  - › Seismic-related ground failure, including liquefaction
  - › Landslides
- Result in substantial soil erosion or loss of topsoil
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse
- Be located on expansive soil, as defined in Table 18-1-A of the California Building Code (2001), creating substantial risks to life or property.

3.5.4 Impacts

An impact that normally is considered significant would expose people or structures to major geologic or seismic hazards, or make a substantial change in the topography of a site, or alter any unique geologic or physical feature of the site. The listed geo-seismic hazards include rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure (including liquefaction), landslides (including mudslides), and location on an unstable geologic unit. The listed soil conditions include erosion, loss of topsoil, location on an unstable soil unit, location on expansive soil, and location on soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater.

The criterion applied to the analysis of the impacts of excavation, construction, and grading is whether implementation of the Flintridge Properties project, as proposed, would create a fundamental change in the soil, geologic, or seismic conditions, that would last beyond the initial development period.

The criterion applied to the analysis of the geo-seismic hazards that could endanger residents of, or visitors to, the Flintridge Properties project, or adjacent areas, during the lifetime of the project is whether implementation of the project, as proposed, would increase the exposure of people in the vicinity to unmitigated seismic hazards, soil or slope instability hazards, or other hazardous geotechnical conditions.

Impacts in either of these categories would be considered unavoidable significant effects of the project, if they could not be (a) reduced to an acceptable level of risk, (b) eliminated, or (c) avoided by using existing techniques, generally recognized by geotechnical consultants in the Los Angeles Basin Area to be applicable and feasible.

Less-Than-Significant Impacts

Groundshaking

Buildings and infrastructure associated with the implementation of the proposed project would be subject to potentially damaging seismically induced groundshaking during the life of the project. From the review of regional and local geo-seismic conditions, it is apparent that the project area will be subjected to at least one major earthquake during the useful economic life of the project. The design earthquake for the project area is estimated to be an M_w7.0 earthquake on the Sierra Madre fault, creating peak horizontal ground accelerations in excess of 0.7 g. The resulting vibration could cause damage to structural members of residential facilities and their associated

infrastructure (primary effects), and could cause ground failures such as landslides in the hill soils or dynamic settlement in alluvium and poorly compacted fill (secondary effects).

To reduce the risks associated with seismically induced groundshaking, it is necessary to take the location and type of subsurface materials into consideration when designing foundations and structures for a particular project site. As stipulated in the City of La Cañada Flintridge's Building Code, buildings and infrastructure are required to reduce the exposure to potentially damaging seismic vibrations through seismic-resistant design, in conformance with California Building Code Seismic Zone 4 requirements (the most stringent in the State).

The current La Cañada Flintridge Building Code Chapters16, 18, 33, and A33 requires the design plans to be and reviewed by the City's California-registered geotechnical and/or structural engineer, and to incorporate the required safety precautions set forth in those Codes into the design of trenches, slopes, foundations and structures for the project. Therefore, implementation of these requirements as, required by the Building Code, would assure the City that the potential impacts of groundshaking would be reduced to a less than significant level, and no mitigation is required.

Potentially Significant Impacts

Impact GEO-1 **The use of expansive, weak or slide-prone soils for foundation, made-slope, or roadway support without prior treatment could create unstable soil conditions at the construction site, thus threatening the integrity of completed construction. This would be considered a *potentially significant* impact.**

The existence of expansive, compressible, and corrosive soils does not appear to be a major occurrence in the project area. However, slide-prone soils are common throughout the project area, as well as on the project site. The creation of building pads, fill slopes, or access road bases using unsuitable or unstable soils for fill has the potential to create future problems of foundation settlement and road or utility line disruption if the soils are not specifically engineered for stability. Future problems could include damage to structures and roads from erosion associated with slide-prone soils.

Construction at the project site and occupation of the dwelling units would be required to follow standard engineering techniques described in the City's Building Code, and the special requirements of the Hillside Development Ordinance policies. Mitigation Measure GEO-1 would require site-specific soil suitability analysis and stabilization procedures to assess current and future potential for geological instability, as well as include design criteria for foundations during the design phase for each site where the existence of unsuitable soil conditions is known or suspected. This mitigation would be included in construction drawings and specifications prior to approval of final project plans and issuance of building permits, and would reduce the potential impact of weak soils to a less-than-significant level.

Impact GEO-2 **Construction activities on the project site could result in the increased potential for short- or long-term increases in erosion. This would be considered a *potentially significant* impact.**

The project includes cut-and-fill operations, to be balanced on the site. Because the project would involve grading of an area greater than 5 acres, it is required to apply for a National Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (after 15 March 2003, the exemption limit drops from five acres to one acre). The NPDES permit will be required to cover infrastructure installation. Displacement of soil through cut-and-fill will be controlled by the City's grading standards, Chapters 16, 18, 33, and A33 of La Cañada Flintridge's Building Code and the Hillside Development Ordinance regulations. Soil erosion after construction would be required to be controlled by implementation of approved landscape and irrigation plans.

Any project involving grading of an area greater than five acres is required to apply for an NPDES permit from Los Angeles Regional Water Quality Control Board (LARWQCB). This permit requires the developer to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). A Best Management Practices (BMP) Program, as required by the LARWQCB, would be prepared as part of the SWPPP. The SWPPP would be required to include plans for construction and post-construction stormwater management programs aimed at reducing non-point source pollution. BMPs would include reporting of spills, implementing "good housekeeping" techniques to reduce contamination of surface water, preventive maintenance, inspection and record keeping, security measures, and employee training. The Spill Prevention Control and Countermeasure Plan would be included in the BMP Program. If construction were scheduled to occur throughout the year, or if it is unlikely to be restricted to the dry months of the year, the erosion control BMPs must be implemented to ensure that sediment is confined to the construction area and not transported off site. Erosion control also is required by the City, County, and the LARWQCB through General Plan policies and regulatory permits.

The Erosion and Sediment Transport Control Plan may be incorporated as part of the SWPPP for the entire project area. A certified erosion control professional, or licensed landscape architect or registered civil engineer specializing in erosion control, must design the Erosion and Sediment Transport Control Plan.

Standard engineering techniques and implementation of Mitigation Measure GEO-2 would reduce potential impacts to a less-than-significant level.

Significant Unavoidable Impacts

Impact GEO-3 **The Vista-Amargosa soil association on most of the hillsides have severe limitations for the use of private sewage disposal systems. Currently the feasibility of septic systems within lots 9-13 of the site has not been sufficiently demonstrated. This would be considered a potentially significant impact.**

The existence of the Vista-Amargosa soils (thin silty sand over impervious bedrock) on most of the hillsides at the project site, and of alluvium (slightly thicker gravelly sand) in the bottoms of the canyons creates difficulties for the development of septic systems on Lots 9 through 13. The National Soil Conservation Service (United States Department of Agriculture, 1977) lists these soils as severely limited and limited, respectively, for use as sewage disposal areas because they are coarse-grained and shallowly underlain by the Wilson Diorite – nearly impervious

granitoid bedrock. These conditions mean that little natural treatment takes place as wastewater passes through them.

The geotechnical report (J. Byer Group, 2001, p.12) states that private disposal systems *may* be feasible for these five lots in the cut portion of the project site that would not be served by the public sewer system. Possible locations for one or more seepage pits excavated into bedrock are indicated for each lot on their geologic map. The report goes on to state that the pits should be designed by a civil engineer, and constructed and tested prior to issuance of a building permit. Additionally, the pits should be considered a temporary solution and the residences should be connected to the public sewer as soon as practical. The pits would need periodic maintenance and pumping to remain effective.

The Hillside Development Ordinance (Chapter 11.35, Title 11 Zoning, La Cañada Flintridge Municipal Code) requires a hydrology report for sites where alteration to the existing topography is proposed, as at this project site (HD §11.35.050 A.7). HD §11.35.050 A.7.c.iii requires the report to contain a concluding statement evaluating the ability of the proposed sewage disposal system to meet the absorption capacity requirements of Los Angeles County's standards for private sewage disposal systems. The information in the geotechnical report does not discharge this requirement, or currently allow a determination of the feasibility of installing seepage pits at the proposed locations.

As the project applicant cannot currently demonstrate the feasibility of the seepage pits due to the lack of site-specific absorption capacity values as defined by the Hillside Development Ordinance, or currently provide a viable alternative (e.g., connection to the public sewer system), there is no feasible mitigation and impacts of the proposed private disposal systems would be *significant and unavoidable*. Mitigation Measure GEO-3 would lessen this impact.

3.5.5 Mitigation Measures and Residual Impacts

MM GEO-1 Site-specific soil suitability analysis and stabilization procedures, and design criteria for foundations and road bases (described in the current La Cañada Flintridge Building Code Chapters 16, 18, and 33) shall be required, as recommended by a California-registered soil engineer, during the design phase for each site where the existence of unsuitable soil conditions is known or suspected. During the design phase, where the existence of unsuitable soil conditions is known or suspected, the Developer's registered soil engineering consultant shall provide documentation to the City that

- Site-specific soil suitability and stability analyses has been conducted in the area of the proposed foundations and road bases to establish the design criteria for appropriate foundation or road base type and support
- The recommended criteria have been incorporated in the design of foundation
- During grading for these sites, the registered soils professional shall be on the site to
  - Observe areas of potential soil unsuitability or instability
  - Supervise the implementation of soil remediation or reconstruction programs

› Verify final soil conditions prior to setting the foundations or constructing the roadway

The registered soils engineering consultant shall prepare an "as built" map/report, to be filed with the City, showing details of the site soils, the location of foundations, retaining walls, sub-drains, clean-outs, etc., and the results of suitability/stability analyses and compaction tests.

MM GEO-2 The Applicant shall take the following actions to reduce the potential for erosion during and after the construction period:

- To the extent practicable, project site grading shall be scheduled for the dry season (April through September).
- All NPDES permit requirements shall be fulfilled prior to issuance of building permits.
- The Applicant shall submit a soil erosion and sedimentation control plan for the project to the City of La Cañada Flintridge prior to grading, subject to the following recommendations:
  - › The Erosion and Sediment Transport Control Plan (as part of the overall SWPPP) shall be submitted, reviewed, implemented, and inspected as part of the approval process for the grading plans.
  - › The Plan shall be designed by the master developers' erosion control consultant, using concepts similar to those formulated by the State of California, as appropriate, based on the specific erosion and sediment transport control needs of the site where grading, excavation, and construction is to occur. Those concepts include some that apply generally to the entire project area and some that would be appropriate only for specific sites. The possible methods are not necessarily limited to the following items:
  - › A biotechnical slope protection program shall be implemented using indigenous and other natural materials to create stable hillside configurations in the areas disturbed during the construction of building pads and access roads. The program shall match appropriate protection procedures to the slope being stabilized, using more intensive treatment on steep, vulnerable slopes, and less intensive treatment on gentle slopes, to prevent future damage that could result from the construction or operation of the residences. Staked straw wattles and straw bales, salvaged and replanted seeds, saplings or cuttings of local plants, replanted local grasses and nursery grown plants, brush boxes, willow bundles, silt fences, mulch made of chipped local woody plants, and temporary irrigation shall be used as appropriate to create and maintain stable slope configurations.
  - › Revegetation of disturbed areas shall begin as soon as possible following the closure of excavation on each building pad site, consistent with completion of project construction. The stockpiled topsoil shall be spread in the disturbed areas, but not compacted beyond 60 percent recompaction, to allow the naturally occurring seeds and roots of local plants an opportunity for reestablishment. If necessary, the site shall be irrigated to encourage plant growth until the vegetation has been reestablished (probably by the time the winter rainy season begins). The sites shall be monitored for several weeks after project completion to ensure the vegetation is taking hold. If the vegetation is not reestablishing itself, cuttings or rootings shall be taken from local plants and established on the site.
  - › Stockpile the excavated topsoil separately from other subsurface materials to facilitate revegetation of disturbed areas at the close of grading. Sprinkled the stockpile as necessary to keep the surface moist, thus reducing wind erosion. Approximately ½ gallon of water per square yard, sprinkled twice a day over drying stockpiles and disrupted surfaces will settle fine dust raised during earth-moving procedures.

- › Confine grading and activities related to grading (excavation, construction, preparation, and use of equipment and material storage areas and staging areas, preparation of access roads) to the dry season, whenever possible.
- › Locate staging areas outside streams and drainage ways.
- › Keep the lengths and gradients of constructed slopes (cut or fill) as low as possible.
- › Discharge grading and construction runoff into small drainages at frequent intervals to avoid buildup of large potentially erosive flows.
- › Prevent runoff from flowing over unprotected slopes.
- › Keep disturbed areas (areas of grading and related activities) to the minimum necessary for demolition or construction of the project.
- › Keep runoff away from disturbed areas during grading and related activities.
- › Stabilize disturbed areas as quickly as possible, either by vegetative or mechanical methods.
- › Direct runoff over vegetated areas prior to discharge into public storm drainage systems, whenever possible.
- › Trap sediment before it leaves the site with such techniques as check dams, sediment ponds, or siltation fences.
- › Use interceptor ditches, drainage swales, or detention basins to prevent storm runoff from transporting sediment into drainage ways and to prevent sediment-laden runoff from leaving any disturbed areas.
- › Install sediment barriers (silt fences, straw rolls, etc.) to prevent sedimentation in areas adjacent to grading and down gradients into drainage ways. Design barriers using the Revised Universal Soil Loss Equation to calculate their proper storage capacity. The contractor shall implement installation by prior to mass grading and other soil disturbing construction activities on site.
- › The contractor shall be responsible for the removal and disposal of all project-related sedimentation in off-site retention ponds.
- › Use landscaping and grading methods that lower the potential for down-stream sedimentation. Modified drainage patterns, longer flow paths, encouraging infiltration into the ground, and slower stormwater conveyance velocities are examples of effective methods.
- › Control landscaping activities carefully with regard to the application of fertilizers, herbicides, pesticides, or other hazardous substances. Provide proper instruction to all landscaping personnel on the construction team.
- › During the installation of the erosion and sediment transport control structures, the erosion control professional shall be on the site to supervise the implementation of the designs, and the maintenance of the facilities throughout the demolition, grading, and construction period.

MM GEO-3 Prior to final map approval, the Applicant must obtain all necessary permits to allow septic systems to be installed on lots 9 – 13. This would require the Applicant to demonstrate the feasibility of the septic systems to the County of Los Angeles Department of Health Services, and other pertinent regulatory agencies by having a qualified and certified professional perform percolation tests and prepare soil profile reports for the areas to be served by the septic systems.

3.5.6 Cumulative Impacts

Cumulatively, the City of La Cañada Flintridge is subject to varying degrees of hazard from local geologic conditions, such as landslides, erosion, and seismic groundshaking. The most recognizable regional impact is

earthquake damage caused by large earthquakes on the major active fault systems in the area. The City of La Cañada Flintridge Building Code is intended to reduce the risk of structural collapse and loss of life in new and retrofitted buildings in the City, but major damage and harm to humans could occur on a broader regional basis because cumulative development may attract residents and businesses to less seismically stable areas. Because new projects constructed on a cumulative basis throughout the region would be built to current, safer seismic standards than were existing older structures, fewer people would be expected to be injured or killed if they were in newer structures, and less property damage would be expected as a result of cumulative development. Project development would not compound risks to existing structures from landslides, erosion, and seismic groundshaking since these impacts are site specific. Additionally, the structures built on the proposed project would be constructed to comply with current building and safety codes that are designed to minimize the risk of death or injury to both the occupants of the dwellings proper, and individuals occupying adjacent structures. As such, cumulative impacts would be *less than significant*.

3.5.7 Glossary

Alquist-Priolo Earthquake Fault Zone: In 1972 the State of California began delineating special studies zones (called Earthquake Fault Zones since January 1994) around active and potentially active faults in the state. The zones are revised periodically, and extend 200 to 500 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified active fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault, unless proven otherwise. Proposed construction within the Earthquake Fault Zone is permitted only following the completion of a fault location report prepared by a California Registered Geologist.

Characteristic Earthquake: The moment magnitude (see below) of the seismic event considered representative of a particular fault segment, based on seismologic observations and statistical analysis of the probability that a larger earthquake would not be generated during a given time frame. The term "characteristic earthquake" replaces the term "maximum credible earthquake" (see below) as a more reliable descriptor of future fault activity.

Horizontal Ground Acceleration: The speed at which soil or rock materials are displaced by seismic waves. It is measured as a percentage of the acceleration of gravity (0.5g = 50 percent of 32 feet per second squared, expressed as a horizontal force). Peak horizontal ground acceleration is the maximum acceleration expected from the characteristic earthquake predicted to affect a given area. Repeatable acceleration refers to the acceleration resulting from multiple seismic shocks. Sustained acceleration refers to the acceleration produced by continuous seismic shaking from a single, long-duration event.

Modified Mercalli Intensity (MMI) Scale: A 12-point scale of earthquake intensity based on local effects experienced by people, structures, and earth materials. Each succeeding step on the scale describes a progressively greater amount of damage at a given point of observation. Effects range from those that are detectable only by seismicity recording instruments (I) to total destruction (XII). Most people will feel Intensity IV ground motion indoors and Intensity V outside. Intensity VII frightens most people, and Intensity VIII causes alarm approaching panic. The scale was developed in 1902 by Giuseppi Mercalli for European conditions, adapted in 1931 by

American seismologists Harry Wood and Frank Neumann for conditions in North America, and modified in 1958 by Dr. Charles F. Richter to accommodate modern structural design features.

Moment Magnitude (M_w): A logarithmic scale used by modern seismologists to measure the amount of energy released by an earthquake. For the purposes of describing this energy release (i.e. the "size" of the earthquake on a particular fault segment for which seismic-resistant construction must be designed) the moment magnitude (M_w) of the characteristic earthquake for that segment has replaced the concept of a maximum credible earthquake of a particular Richter magnitude. This has become necessary because the Richter scale "saturates" at the higher magnitudes; that is, the Richter scale has difficulty differentiating the size of earthquakes above M 7.5. The M_w scale is proportional to the area of the fault surface that shifts (slips) during an earthquake, and, thus is directly related to the length of the rupture. It reflects the amount of "work" (in the sense of classical physics) done by the earthquake. Although the numbers of the M_w scale may appear lower than those of the traditional Richter magnitudes, they convey more precise (and more useable) information to geologic and structural engineers.

Richter Magnitude Scale: A logarithmic scale developed during 1935 and 1936 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude (M) by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials (for which, see Modified Mercalli Intensity Scale). Each whole number on the Richter scale represents a 10-fold increase in amplitude of the waves recorded on a seismogram and about a 31-fold increase in the amount of energy released by the earthquake. Because the Richter scale tends to saturate above about M 7.5, it is being replaced in modern seismologic investigations by the moment magnitude (M_w) scale (see above).

3.5.8 References

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3.6 HAZARDS AND HAZARDOUS MATERIALS

This section provides a discussion of the potential adverse hazard-related impacts that could result from project construction and operation. Due to the undeveloped nature of the project site, this analysis emphasizes wildland fires. Including the potential for the construction of the proposed project to cause wildland fires or increase the risk of fire exposure to residents of the site and surrounding area. Hazards related to groundshaking, subsidence, and landslides are evaluated in Section 3.5 (Geology and Soils), and water-related hazards are discussed in Section 3.7 (Hydrology and Water Quality). The air quality impact analysis in Section 3.2 (Air Quality) provides a discussion of potential construction-generated hazardous emissions and air pollution.

The initial study prepared for the project concluded that no impacts would occur that are associated with the routine transport, use, or disposal of hazardous material; the release of hazardous materials into the environment or within 0.25 mile of a school; the listing of the proposed project site pursuant to Government Code Section 65962.5; or the potential to interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, no additional discussion of these issues is provided in this EIR.

3.6.1 Environmental Setting

Project Location Characteristics

As described in Section 2 (Project Description), the project site is located in the southern portion of La Cañada Flintridge in a residential neighborhood in the western portion of the San Rafael Hills. The project site currently is undeveloped and vacant, lying at about 1,500 feet in elevation and encompassing approximately 47.11 acres. Residential development surrounds the proposed development area on all sides. Sacred Heart High School lies adjacent to the southern edge of the subject property. The boundary between the cities of La Cañada Flintridge, Pasadena, and Glendale lies about 0.25 mile south of the site.

Wildland Fires

The hillside areas of La Cañada Flintridge, including the project site, are susceptible to a range of fire hazards, including wildfires. The primary wildfire hazard areas in La Cañada Flintridge occur in the hillside areas. The wildfire hazard is exacerbated by seasonally high winds occurring during the Santa Ana condition and dry vegetation that acts as fuel for wildland fires.

According to the City of La Cañada Flintridge General Plan Public Safety Element, the project site is within a "High Fire Hazard Area." Vegetation at the project site mainly consists of chaparral, coastal sage scrub, and native and non-native grasses. These types of vegetation are common in the La Cañada Flintridge Planning Area and provide highly flammable fuel that allows fire to spread easily. These plant species are capable of regeneration after a fire, making periodic wildfires a natural part of the ecology of the project area. In addition, the steep slopes in the area bring vegetation within easy reach of the flames and impede the access of firefighting equipment. Wildfires may be started by a variety of sources, including careless use and discard of matches and cigarettes, and

sparks from ignition of construction equipment. The risk of fire ignitions is currently attributable to vehicle uses along the adjacent roadways, residential uses adjacent to the site, and any passive unauthorized on-site uses.

Fuel Modification Zones and Plans

A fuel modification plan identifies specific zones of a property within which the native vegetation pattern is altered or replaced to reduce the risk of or losses due to wildfires. Fuel modification plans vary in complexity and reflect the fire history of an area, the amount and type of vegetation, the arrangement of the fuels, topography, local weather patterns, and construction, design, and placement of structures. A fuel modification zone is a strip of land where combustible native or ornamental vegetation has been modified and/or partially or totally replaced with drought-tolerant, fire-resistant plants. Through these actions, fuel modification reduces radiant and convective heat and provides fire suppression that creates a defensible space in which to take action. Fuel modification zones are strategically placed as a buffer to open space or areas of natural vegetation, and generally occur surrounding the perimeter of a subdivision, commercial development, or isolated development of a single-family dwelling. Currently, the project site is undeveloped and does not contain any fuel modification zones. However, development of the proposed project would require the development to be consistent with the County of Los Angeles Fire Department (LACFD) fuel modification zones and fuel modification plan.

Hazardous Materials

Given the site's significant topography and currently undeveloped state, the project site does not offer easy access or opportunity for large-scale human encroachment. No development has previously occurred on the sit. As such, the project site is not known to be currently contaminated by hazardous materials.

Emergency Response Plan

The City of La Cañada Flintridge maintains a citywide emergency response plan that goes into effect at the onset of a major disaster such as a fire or an earthquake. The Emergency Services Coordinator maintains the disaster plan for the City of La Cañada Flintridge. In case of a disaster, the Fire Marshal is responsible for implementing the plan, and the Los Angeles County Sheriff's Department devises evacuation routes base on the specific circumstance of the emergency. The project site is located within a residential area and will not change the logistical nature of implementation of the emergency response plan in the surrounding neighborhoods.

3.6.2 Regulatory Framework

County of Los Angeles Fire Department—Fuel Modification Plan Guidelines

The City does not have its own fire department and therefore contracts with the Los Angels County Fire Department (LACFD) to provide fire protection. According to the guidelines set forth by the LACFD, a "Fuel Modification Plan" must be submitted by the applicant for all development located within a Very High Fire Severity Zone, as per Section 1117.2.1 of the 1996 County Fire Code.

The Los Angeles County Fuel Modification Plan Guidelines (County of Los Angeles, 1998) states that the fuel modification plan shall identify one or more of the following zones: A-Setback Zone; B-Irrigated Zone; C-Thinning Zone; D-Interface Thinning Zone based upon preliminary plan review by the Forestry Division. The actual width of any Fuel Modification Zone shall depend on the ability to provide desirable clearance distances and would ultimately require the approval of the Fire Chief. The Fuel Modification Plan for the proposed project site would be subject to the following requirements:

Zone A—Setback Zone

- Zone in closest proximity to the structure
- Minimum of 20 feet beyond the edge of combustible structures, attached accessory structures, or appendages and projections.
- For purposes of the fuel modification plan, all combustible accessory structures, appendages, or projections within 20 feet of the combustible structure will be considered as attached.
- Most vegetation in this zone is limited to ground covers, green lawns, and a limited number of selected ornamental plants.

Zone B—Irrigated Zone

- May have isolated detached accessory structures such as patio covers, decks, carports, trellises, and other similar accessory structures provided they meet building code requirements.
- Some native or existing vegetation may remain if spaced according to planting guidelines (LACFD Fuel Modification Plan Guidelines, Appendix III) and maintained free of dead wood, and individual plants are thinned to a percentage as specified during the preliminary review to reduce the fuel load.
- A large percentage of existing vegetation may be removed and replaced with appropriate irrigated fire resistant and drought tolerant plant material.

Zone C—Thinning Zone

- Predominantly existing vegetation with removal of the majority of undesirable plant species including trees and tree-form shrubs.
- Reduce fuel loading by reducing the fuel in each remaining shrub or tree without substantial decrease in the canopy cover or removal of soil holding root system.
- Some replacement planting with ornamental or less flammable native species to meet minimum slope coverage requirements of City or county public works, landscape or hillside ordinance.
- Natural vegetation is thinned be reducing amounts as the zone moves away from the development.

Zone D—Interface Thinning Zone

- Area serving as the initial interface between wildland areas and fuel modification zones.
- Consists of native vegetation individually thinned to reduce foliage mass or fuel loading. This does not necessarily require removing plants, but thinning those that exist.
- Proper thinning and spacing of remaining trees and tree-form native shrubs, reducing fuel load without overly exposing the soil to the threat of erosion.

- Natural vegetation is thinned by reduced amounts as the zone moves away from the development.

Prior to the issuance of a building permit, the applicant must submit three (3) sets of blue line plans to LACFD showing final fuel modification requirements and shall include the following: Irrigation Plan, Landscape Plan, Zone Delineation, and a letter which outlines the Identification of Responsibility. The LACFD must review and approve the final fuel modification plan package submitted by the applicant.

While the guidelines provide for some flexibility of implementation of the size of these four zones, they are almost uniformly implemented where the first three zones are in the first 100 feet from the structure, and the fourth zone is an additional 100feet, with total fuel modification of 200 feet surrounding each structure.

Southern California Association of Governments (SCAG)

SCAG policies related to hazards and applicable to the proposed project include

Policy 3.22 Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.

Consistency: By building roadways, improving access throughout the project site, reducing the fuel load on the project site, and including the provision of special design requirements applicable to such hillside development, the proposed project is consistent with these SCAG goals, objectives, and policies.

3.6.3 Thresholds of Significance

The significance of a public health risk is determined by the probability of individuals being exposed to hazard as a result of construction and operation of the proposed project. The proposed project would have a significant adverse impact if it will

- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

3.6.4 Impacts

Potentially Significant

Impact HAZ-1 **Implementation of the proposed project would expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.**

Short-term impacts could result during the construction phases of the project. The presence of construction equipment (vehicles, gas or electric generators, tools, etc.) may increase the likelihood of a wildland fire. Overgrown and untended vegetation would be present in or near the construction areas and could be ignited by a spark or heat-related incident due to the operation of construction equipment. If disturbed vegetation is concentrated in an area and allowed to dry, a potential fire hazard also would be created. In addition, the presence

of construction personnel increases the potential for wildland fires through human-influenced ignition (use of smoking-related paraphernalia, flammables, etc.).

Construction of the proposed project could create long-term impacts by increasing the risk of damage to property and life as a result of urban residential development in a fire hazard area with a high potential for wildland fires. Sources of potential fire ignition include sparks from chimneys, barbecues, and power tools and the careless use of matches, cigarettes, and fireworks.

Because the proposed property is located within a high fire hazard severity zone, the provisions of the Los Angeles County Fuel Modification Plan Guidelines (County of Los Angeles 1998) are strictly applicable to the proposed project. Development of the project site would require the removal of most of the existing flammable vegetation, including the most fire-prone species in the coastal sage scrub community. Although on-site fuels would be substantially reduced by grading, the project proposes to retain areas of open space and maintain interface with areas of coastal sage scrub, which could present a fire hazard in the event that fire approaches from the east or west.

The LACFD reviews each project on a case-by-case basis to identify the contributing extreme fire hazard conditions including, but not limited to, wind direction and velocity, fuel load, neighboring land uses, terrain, access for firefighting equipment, adequacy of water supply and delivery systems, and construction standards. If the LACFD concludes an extreme fire hazard exists on the property, the installation of automated sprinkler systems may be required. Additionally, access to the proposed project site by fire fighting vehicles is subject to Article 9; Section 902.2.1, which states that more than one access road may be required as deemed necessary by the fire chief. However, as identified in Exception 2, when access roadways cannot be installed due to the location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the chief is authorized to require additional fire protection. Generally, the Santa Monica Mountains and the south-facing slopes of the San Gabriel Mountains are considered to be Extreme Hazard areas.

Although the possibility for fire incidents exists within the project site, the properties are subject to the fuel modification guidelines described in Subsection 3.6.2, which would substantially minimize the potential for both on- and off-site fires to impact the project site. The combination of vegetation removal, setbacks, fuel modification zones, and introduction of paved surfaces where none currently exist would greatly reduce the movement of a potential fire from or to the project site properties. However, human-influenced ignition sources at the project site (i.e., discarded cigarettes, arson, fireworks, etc.) are common in any urbanized area and are virtually uncontrollable. The permanent introductions of these ignition sources, as well as additional residents, into an area characterized by an extreme fire hazard would represent a substantial increase in risk associated with wildland fires, which would constitute a potentially significant impact. However, implementation of Mitigation Measures HAZ-1.1 through HAZ-1.10 would reduce potential increased risks of wildfires, both short- and long-term, to a ***less-than-significant*** level through adherence to fire and development codes, reduction of fuel load, and installation of fire-resistant plant materials on hillside and open space areas, which would result in an improvement of firefighting capability within and adjacent to the project site.

3.6.5 Mitigation Measures and Residual Impacts

MM HAZ-1.1 The proposed project shall include proper ingress/egress access for the circulation of traffic and emergency response vehicles, as determined by LACFD. Project site plans shall be subject to review and approval by the Department prior to issuance of a grading permit.

MM HAZ-1.2 Every building constructed shall be accessible to Fire Department apparatus by way of access roadways with an all-weather surface of not less than the prescribed width, unobstructed, clear to sky.

MM HAZ-1.3 The roadway shall be extended to within 150 feet of all portions of the exterior walls of all project walls as measured by an unobstructed route around the exterior of the building.

MM HAZ-1.4 The Applicant shall install fire hydrants within 450 feet of each individual home, as well as within 600 feet of each other, as required by the City.

MM HAZ-1.5 Prior to the issuance of a grading permit, the Applicant shall prepare a Fire Protection Plan (FPP) and a Hazardous Materials Management Plan for the construction phase of the project. Contingency analysis and planning shall be conducted to identify fire situations, how to minimize their occurrence, and how to respond should they actually occur. The City's Fire Department shall review and approve the plans based on their specific needs and resources.

MM HAZ-1.6 The Applicant shall notify emergency response providers near the proposed route in advance of construction activity. Notification shall include the details of location, road closure schedules, and potential alternate routes. Schedules for necessary on-street parking closures would be published well in advance of the closures. Businesses and residents directly affected by the construction activity would be given ample notice and information to plan alternatives. Signage would be provided to direct motorists to alternative routes.

MM HAZ-1.7 To the extent possible the Applicant shall ensure strict code enforcement to reduce urban fires caused by violations of code sections related to fire safety.

MM HAZ-1.8 The Applicant shall provide weed and brush removal and planting of fire retardant materials with project implementation.

MM HAZ-1.9 Due to the project property location being within an area designated by the LACFD as a High Fire Hazard Severity Zone, a Final Fuel Modification Plan shall be submitted by the Applicant, which shall correlate to the LACFD guidelines and shall be approved prior to building permit approval by the City and the LACFD. Implementation of the approved Final Fuel Modification Plan and final inspection will be required prior to approval of occupancy of residences.

MM HAZ 1.10 The developer of each structure on the project site shall install interior automated fire-sprinkler systems (13-D system) in each residential unit, in accordance with the City Code.

Implementation of these mitigation measures would reduce all potentially significant impacts to less-than-significant levels.

3.6.6 Cumulative Impacts

The eventual development and occupation of the proposed project as well as future projects within the hillside areas and other high fire risk areas will increase the density of residences within these areas and will cumulatively increase the risk of damage to property and/or life resulting from wildland fires. This is considered to be a potentially significant impact. However, projects would have to conform to the County of Los Angeles Fire Department Fuel Modification Plan Guidelines, which require the implementation of measures designed specifically to reduce project-related impacts from the risk of fire. Implementation of these measures collectively would reduce any potentially significant cumulative impact to a less-than-significant level.

3.6.7 References

Gil, Matthew. 2002. Personal communication with Battalion Chief of Los Angeles County Fire Station No. 82, December.

Gil, Matthew. 2003. Personal communication with Battalion Chief of Los Angeles County Fire Station No. 82, January.

La Cañada Flintridge, City of. 1994. *Comprehensive General Plan*, Safety Element. Adopted March 1980.

La Cañada Flintridge, City of. *Municipal Code*.

Los Angeles County Fire Department. 1996. LAC Fire Code.

Southern California Association of Governments (SCAG). 1996. *Regional and Comprehensive Plan and Guide*.

3.7 HYDROLOGY AND WATER QUALITY

The purpose of this section is to describe the drainage impacts of the proposed project site. Information for site drainage and grading conditions are taken from *Tentative Tract Map No. 53647* and *Hydrology and Preliminary Hydraulics* dated August 2001 (to be named herein as the Engineer's Hydrology Report). Spindler Engineering Corporation in Van Nuys, California, prepared the report. A second hydrological analysis, La Cañada Flintridge EIR Draft Hydrology Report, was performed on behalf of the City to aid in analysis found within this section. Both analyses are included in Appendix E.

The initial study determined that the proposed project would neither place housing within a 100-year flood hazard area nor place structures within a 100-year flood hazard area which would impede or redirect flows, expose people or structures to a significant risk of loss, injury, or death involving flooding, or to risks from inundation by a seiche, tsunami, or mudflow.

3.7.1 Environmental Setting

General

The watershed associated with the proposed project is roughly bounded on the south by Saint Katherine Drive, on the north by Inverness Drive, on the east by the intersection of Inverness and Saint Katherine Drives, and on the west by a ridgeline located approximately 350 feet west of the intersection of Palmerstone and Saint Katherine Drives.

Drainage Patterns

The proposed project generally drains from south to north. The area within the property boundary is approximately 47 acres, but there are substantial off-site tributary areas contribute surface flows that enter the site from the west, south, and east. The size of the entire watershed up-slope of Inverness Drive is approximately 150 acres. The off-site tributary areas consist of single-family residences with adjoining steep hillsides.

Three distinct subareas exist within the watershed and are identified as Subareas 1, 2 and 3 (see Figure #1 in Appendix E). Flows from each subarea concentrate at one of the three low points in Inverness Drive, as discussed in the Engineer's Hydrology Report. Flows from Subarea 1 converge at an existing 24-inch culvert located at the most westerly low point of Inverness Drive. This low point is referred to as Canyon #1 in the Engineer's Hydrology Report. Stormwater from this point flows northerly and ultimately enters into an existing drainage ditch north of Highland Drive.

Flows from Subarea 2 converge at a 24-inch CMP culvert at the middle low point of Inverness Drive. This middle low point is referred to as Canyon #2 in the Engineer's Hydrology Report. Storm flow from Canyon #2 continues northerly along Inverness Drive and enters into the existing drainage ditch north of Highland Drive.

Flows from Subarea 3 concentrate at the intersection of Inverness and Corona Drives and are conveyed downstream via a system of roadside concrete ditches and underground pipes located along the west side of Corona Drive. The stormwater runoff from Subarea 3 flows northerly along Corona Drive and enters the drainage ditch located north of Highland Drive.

Downstream Drainage

Flows within the drainage ditch north of Highland Drive flow easterly and enter the Flint Canyon flood control channel, which is presently maintained by the Los Angeles County Department of Public Works. Flows from Flint Canyon continue easterly toward the Devil's Gate Flood Control Basin, which is also maintained by the Los Angeles County Department of Public Works. With implementation of required stormwater Best Management Practices flood conveyance systems north of Inverness Drive should not be affected by the proposed development.

Regional Flooding

Research at the Federal Emergency Management Agency (FEMA) and the City of La Cañada Flintridge indicates that Flood Insurance Rate Maps (FIRM) have not been prepared. Records are not available that indicate flooding potential for the areas within and downstream of the proposed development.

Surface Water Quality

Surface water quality in urban areas is affected by various point-source and nonpoint-source pollutants. Point-source pollutants are those emitted at a specific point, such as a pipe, while nonpoint-source pollutants are typically generated by less confined sources, such as streets, residences, or landscaped areas. The above-mentioned drainage devices receive runoff from a variety of nonpoint sources. As a general rule, point-source pollutants are more easily monitored; thus, pollutant discharge standards are more easily enforced, while nonpoint-source pollutants, such as those found in runoff, are more difficult to monitor and enforce. Even though nonpoint-source pollutants are difficult to monitor, they are important contributors to surface water quality, especially in urban areas.

Constituents of and concentrations within runoff water vary with surrounding land uses, topography, and amount of impervious cover, as well as intensity and frequency of irrigation or rainfall. Runoff may typically contain oil, grease, and metals accumulated in streets and driveways, as well as pesticides, herbicides, particulate matter, nutrients, animal waste, and other oxygen-demanding substances from landscaped areas. Concentrations of pollutants in runoff generated during the dry season by landscape irrigation and street washing (dry-weather runoff) are typically lower than concentrations found in wet-weather runoff (runoff generated by precipitation during the wet season). The highest pollutant concentrations are found in stormwater runoff generated at the beginning of the wet season, during the so-called "first-flush." Approximately 90 percent of total accumulated pollutants are removed within the first 0.5 inch of rainfall, with street surfaces as the primary source of pollutants in urban areas (EPA 1999).

Groundwater

The San Rafael Hills represent a groundwater recharge area for fractured granitic bedrock and stream channel alluvium. The yield of fractured granitics is fairly low, and wells typically produce less than 5 gallons per minute (gpm). The flow is dependent on the degree of fracturing and bedrock weathering. The overlying alluvium in the stream channels forms a thin veneer that probably does not exceed 5 feet in thickness. Groundwater can occur at the alluvium bedrock interface. Groundwater in the fractured granitic bedrock and alluvium flows down gradient towards the Raymond Basin that forms the northwestern portion of the San Gabriel Valley Basin. Depending on fracture orientation, a portion of the groundwater may flow toward the Central Basin to the east and the San Fernando Basin to the south.

Groundwater seeps or springs were not observed during the field exploration on December 27, 2002. The field exploration followed a winter storm event when seeps and springs would more likely occur. Specifically groundwater seeps or springs were not observed along granitic exposures or in the area of the proposed graded lots at the site. Moss suggesting the presence of moisture was observed on granitic outcrops along Monarch Drive.

3.7.2 Regulatory Framework

Federal

Clean Water Act

The Clean Water Act (CWA) was designed to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA also directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis. Other provisions of the CWA related to basin planning include Section 208, which authorizes the preparation of waste treatment management plans, and Section 319, which mandates specific actions for the control of pollution from non-point sources. The EPA has delegated responsibility for implementation of portions of the CWA to the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB), including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program.

Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. Section 304(a) requires the EPA to publish water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards.

Section 303(c)(2)(b) of the CWA requires states to adopt numerical water quality standards for toxic pollutants for which EPA has published water quality criteria and which reasonably could be expected to interfere with designated uses in a water body.

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of Waste Discharge Requirements (WDRs) by the RWQCBs. Land and groundwater-related WDRs (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process and wash-down wastewater. WDRs for discharges to surface waters also serve as NPDES permits, which are further described below.

State

Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and State water quality statutes and regulations. The RWQCBs develop and implement Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. The Los Angeles Basin Plan implements a number of federal and State laws, the most important of which are the State Porter-Cologne Water Quality Control Act and the Federal Clean Water Act.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface and groundwaters) and directs the RWQCB to develop regional Basin Plans. Section 13170 of the California Water Code also authorizes the SWRCB to adopt water quality control plans on its own initiative.

The Los Angeles Basin Plan specifically (1) designates beneficial uses for surface and ground waters; (2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy; and (3) describes implementation programs to protect all waters in the region. In cases where the Basin Plan does not contain a standard for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document) or from water quality criteria developed under Section 304(a) of the Clean Water Act.

NPDES Permits

The NPDES permit system was established in the CWA to regulate both point-source discharges (a municipal or industrial discharge at a specific location or pipe) and nonpoint-source discharges (diffuse runoff of water from adjacent land uses) to surface waters of the United States. For point-source discharges, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. For nonpoint-source discharges, the NPDES program establishes a comprehensive stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable (MEP). The NPDES program consists of (1) characterizing receiving water quality; (2) identifying harmful constituents; (3) targeting potential sources of pollutants; and (4) implementing a Comprehensive Stormwater Management Program.

The reduction of pollutants in urban stormwater discharge to the MEP through the use of structural and nonstructural Best Management Practices (BMPs) is one of the primary objectives of the water quality regulations. BMPs typically used to manage runoff water quality include controlling roadway and parking lot contaminants by installing oil and grease separators at storm drain inlets; cleaning parking lots on a regular basis; incorporating peak-flow reduction and infiltration features, such as grass swales, infiltration trenches, and grass filter strips into landscaping; and implementing educational programs.

NPDES Phase I (General Construction Activity Stormwater Permit)

Phase I of the NPDES Program addresses stormwater runoff from "medium" and "large" municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater; construction activities disturbing 5 acres of land or greater; and ten categories of industrial activities. With respect to the disturbance of 5 acres of land or greater from construction activities, the SWRCB issued one statewide General Construction Activity Stormwater Permit (on August 20, 1992) to apply to all construction activities. Landowners are responsible for obtaining and complying with the permit, but may delegate specific duties to developers and contractors by mutual consent. For construction activities, the permit requires landowners, or their designated agent, to

1. Eliminate or reduce nonstormwater discharges to stormwater systems and other waters of the United States
2. Develop and implement a Stormwater Pollution Prevention Plan
3. Perform inspections of stormwater control structures and pollution prevention measures
4. The only component of Phase I of the NPDES Program that applies to the proposed project is disturbance of 5 acres of land or greater, which would address stormwater quantity and/or quality

A Stormwater Pollution Prevention Plan (SWPPP) which must be prepared to be in compliance with the Permit describes the site, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and nonstormwater management controls. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity and identify and implement controls where necessary.

NPDES Phase II

New NPDES Phase II stormwater regulations were finalized and issued by the EPA in January 2000 in an effort to continue to preserve, protect, and improve the nation's water resources from polluted stormwater runoff. These new regulations are designed to implement programs to control urban stormwater runoff from additional MS4s in urbanized areas and the operations of small construction sites that were not already covered by Phase I NPDES permits. The main objectives of the Phase II regulations are to reduce the amount of pollutants being discharged to the maximum extent practicable and protect the quality of the receiving waters.

To meet this goal, the permittee must implement a Stormwater Management Program that addresses six minimum control measures, including (1) public education and outreach; (2) public participation/involvement; (3) illicit discharge detection and elimination; (4) construction site stormwater runoff control for sites greater than 1 acre;

(5) post-construction stormwater management in new development and redevelopment; and (6) pollution prevention/good housekeeping for municipal operations. These control measures will typically be addressed by developing BMPs.

Local

The hydrology sections in the La Cañada Flintridge General Plan mandate that development in hillside areas must be planned and designed in such a manner as to avoid flood, mudslide, and subsidence hazards to residences and structures on or near hillside areas, and downhill of any project. Land Use and General Plan Goals and Policies relevant to hydrology and water quality have been addressed in Section 3.08, *Land Use*.

3.7.3 Thresholds of Significance

For purposes of the following impact analysis, the proposed project may be deemed to have significant impacts associated with hydrology or water quality if it will

- Create or contribute runoff water that would exceed the capacity of the receiving, existing, or planned stormwater drainage systems
- Cause or expose people, property, or structures to a significant risk of loss, injury, or death involving flooding
- Substantially alter the existing drainage pattern of the site or area that would result in substantial erosion or siltation on site or off site
- Substantially alter the existing drainage pattern of the site or area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on site or off site
- Substantially degrade surface water quality
- Cause substantial interference with groundwater recharge or direction and rate of groundwater flow or cause substantial deterioration of groundwater quality

3.7.4 Impacts

Proposed Drainage Pattern

The proposed project will remove trees and existing streambeds to make room for street, building pad, and slope construction. Implementation of the project will alter the existing drainage patterns and the rate and amount of surface runoff and debris generated from the proposed project. The runoff from the proposed development will be collected by a system of catch basins, gutters and drains, and will discharge into the existing downstream watercourse. The general watershed areas and collection or exit points at the proposed project were used for comparison of existing and proposed flows presented below.

To determine the impacts of the proposed development, Tetra Tech performed a peer review of the Engineer's Hydrology Report dated August 2001 that was prepared by the Spindler Engineering Corporation. The proposed grading design for Lots 10, 11, and 13 attempts to exchange equal drainage areas to maintain the same areas within

Subareas 1 and 2 (see Figure #2 in Appendix E). Tetra Tech agrees with the conclusions of the report that the proposed development will have minimal impact on Canyons #1 and #2. This assumes that appropriate Stormwater BMPs, such as impervious concrete driveways, detention cisterns, and biofiltration swales, etc., are implemented.

The grading and drainage design within Subarea 3 creates changes in the drainage patterns and encourages debris-laden runoff with increased flow volume to a drainage discharge point K at Inverness Drive (see Figure #2 in Appendix E) and the drainage system located at the intersection of Corona Drive and Inverness Drive. A computation of the before and after development storm flows and maximum debris production volume at point K is attached in Appendix E.

Comparison of Existing and Proposed Flows

The Engineer's Hydrology Report included a tabulation of a preliminary 50-year hydrology analysis based on the Los Angeles County Department of Public Works methodology and computer program for Subareas 1, 2, and 3. Tetra Tech completed a separate interpretation of the changes in subarea patterns from the proposed development. Results showed differences in the area tabulation used in the 50-year hydrology analysis. Accordingly, the flow rates shown below have been calculated using a cubic-feet per acre (CFS/A) adjustment factor to yield more conservative flow rates. The recalculated flow rates show the changes in the stormwater runoff that the proposed development will produce at the proposed project. The area and flow-rate adjustment calculations are shown in Appendix E. A summary of the hydrologic analysis is included in Table 3.7-1.

An existing debris basin is located approximately 425 feet northwest of the Palmerstone Drive and Euston Place intersection. The outflow from the basin is a 48-inch diameter reinforced concrete pipe that discharges directly into Inverness Drive via a riprap apron. This apron will act as an energy dissipater to reduce the likelihood of erosion. During field exploration, debris deposition was noted both within the basin and at the riprap apron. The proposed design will place an engineered slope over the entire basin, and storm flows from upstream will be collected by a proposed storm drain that will discharge directly through the existing outfall culvert into Inverness Drive.

Table 3.7-1 Summary of Existing and Proposed Hydrology

Flow Destination	*Subarea*	*Before Development**	*Post Development**	*Difference*
Canyon #1 at Inverness Drive	1	116 CFS	114 CFS	-2 CFS -1.7%
Canyon #2 at Inverness Drive	2	59 CFS	58 CFS	-1 CFS -1.7%
Inverness Drive at Corona Drive Intersection	3	141 CFS	184 CFS	+43 CFS +30.5%

* Clear water flows only and no bulking of flows due to siltation is included.

A before and after development hydrology calculation for the quantity of stormwater in the culvert is included in shown in Table 3.71 and detailed in Appendix E. The volume of potential debris contributing to the outfall before and after development is estimated, and the calculation included in Appendix E. A summary of the culvert flow analysis is shown in Table 3.7-2. A summary of the debris potential analysis is shown in Table 3.7-3.

Table 3.7-2 Summary of Existing and Proposed Storm Flows at Debris Basin (Point K in Figure # 2)

Flow Destination	*Subarea*	*Before Development*	*Post Development*	*Difference*
Debris Basin Outfall	Portion of Subarea 3	26.5 AC 75 CFS	26.5 AC 80 CFS	+5 CFS +6.7%

Table 3.7-3 Summary of Existing and Proposed Debris Potential at Debris Basin (Point K in Figure # 2)

Flow Destination	*Subarea*	*Before Development*	*Post Development*	*Difference*
Debris Basin Outfall	Portion of Subarea 3	26.5 AC 4,200 CY 0 CY at Street	27.0 AC 2,497 CY 750 CY** at Inverness Drive	750 CY

** Debris volume discounted approximately 70%; debris will accumulate at the intersection of Bramley Way and Monarch Drive. The catch basin openings will restrict the amount of debris delivered to Inverness Drive.

The hydrology analysis indicates that the total clear flow contributing to the existing watercourse and storm drain system downstream at the intersection of Inverness Drive at Corona Drive will increase by approximately 43 CFS. This increase can be attributed to the proposed increase in impervious surfaces, including roofs, driveways, storm drains, hardscape, and streets.

The hydrology analysis indicates that the total clear flow contributing to the existing debris basin outfall and the streets and storm drain system downstream will increase by approximately 5 CFS. This increase can be attributed to the increase in imperviousness of the proposed project due to the addition of roofs, driveways, storm drains, hardscape, and drainage area diversion due to lot grading.

The debris potential analysis indicates that the total debris volume contributing to the existing debris basin outfall and the streets and storm drain system downstream will increase by approximately 750 cubic yards (CY). This increase can be attributed to the elimination of the existing debris basin.

Less-Than-Significant Impacts

Regional Flooding Impacts

Subarea 3 in Table 3.7-1 shows an increase in clear water runoff; however, the increase can be negated by the implementation of stormwater management practices, such as the addition of detention basins/cisterns. Also, field observations suggest that the stormwater before and after development will be effectively conveyed to existing

downstream stormwater facilities. Because additional surface water flows resulting from the proposed project can be adequately conveyed to existing storm drainage facilities, the proposed project will not result in the exposure of people or property to regional flooding.

Groundwater Impact

CEQA Guidelines establish that a project will normally have a significant effect on the environment if it will substantially degrade water quality, contaminate a public water supply, substantially degrade or deplete groundwater resources, or interfere substantially with groundwater recharge.

Although not a public water supply in the project area, the groundwater is an important water resource for the indigenous wildlife in the San Rafael Hills. Some recharge area will be lost because of structures and paving; however, due to the limited recharge areas located within the project site and the rapid rate at which runoff exits the surrounding hillsides and enters the storm drain system, infiltration of groundwater on the project site is limited, and the volume of groundwater below the proposed project has an extremely low probability of being impacted. Further, potential losses in recharge volume may, in part, be replaced by irrigation water from landscaping.

Potential sources of groundwater contamination include fertilizers, herbicides and pesticides from residential landscaping, hydrocarbons from vehicles and roads, animal waste, and construction materials, such as paints and solvents. Slopes will be partially stabilized with vegetation that requires minimal watering and fertilization, and the proposed residential lots will not be suitable for large areas of grass that require periodic applications of nitrates or other fertilizers. This will ensure that significant increases in nitrate levels would not occur as a result of the proposed project, which will insure a low likelihood that increased nitrate levels will enter the Raymond Basin as a result of the proposed project. Consequently, the proposed project will not substantially degrade groundwater resources of the canyon or receiving basin, and this impact would be less than significant.

Potentially Significant Impacts

Surface Drainage

Impact HYD-1 **Alterations in surface flow patterns under the proposed project could result in flooding on areas of the project site during storm events. This is considered a *potentially significant* impact.**

The calculated increase in runoff for Subarea 3 due to implementation of the proposed project is approximately 43 CFS, as shown in Table 3.4-1. This is an increase of approximately 30.5 percent above existing stormwater flow conditions. The increase can be attributed to the addition of impervious improvements, such as roofs, hardscape, driveways, and streets, diversion of flow from improved lot areas, and the more efficient transfer of stormwater by the proposed storm drain system.

Alterations of drainage patterns and increases in runoff volumes on the project site, including the elimination of a detention basin, could result in ponding or flowing on areas of the project site that did not previously convey

surface flows or could not otherwise convey increases in runoff volume. This could affect structures or people on the site by increasing the risk of exposure to flooding. This increased risk of exposure to flooding would be considered a potentially significant impact. However, implementation of Mitigation Measures HYD-1 and HYD-2 would ensure that postconstruction runoff volumes would not exceed preconstruction volumes, and that postconstruction flows would be detained, where appropriate, and conveyed to existing storm drainage facilities. These measures would ensure that no significant increase in risk would occur with respect to collection, control, and conveyance of stormwater flows, and would, therefore, reduce this impact to a less-than-significant level.

Impact HYD-2 **Debris from the surrounding hillsides may block on-site roadways and disable localized storm drains. This is considered a *potentially significant* impact.**

Increased flow rates and elimination of the debris basin will substantially alter the existing drainage pattern of the site and would result in substantially increased siltation on Inverness Drive downstream of the existing debris basin at the intersection of Bromley Way and the proposed Monarch Drive. Presently, mudflows in Bramley Way, when exceeding the catch basin opening capacity, overtop the roadway curb and continue to flow northeasterly in the existing ravine leading to the existing debris basin. The proposed grading at Lots 2, 3, and 8 will create building pads elevated above the roadway elevation at Bramley Way and Monarch Drive intersection, thus creating an area for debris deposition when the catch basin openings get clogged with debris. The increased runoff and debris deposition on the streets will have a significant impact on downstream flooding, with a potential for severe mudflows down Inverness Drive and Corona Drive. The added siltation will also clog downstream stormwater conveyance systems. Additionally, the site design at this location deviates from the City's established policy relating to flooding and mudslides within the City's General Plan. In addition to the stormwater detention requirements outlined in the Standard Urban Stormwater Mitigation Plan (SUSMP), implementation of Mitigation Measure HYD-2 would reduce this impact to a ***less-than-significant*** level by providing a collection structure for postconstruction debris that will prevent debris from impeding collection of storm flows, as well as by stabilizing graded slopes to prevent siltation and prevent and intercept potential mudflows.

Downstream Flooding

Impact HYD-3 **The proposed project has the potential to increase runoff from the project site and could expose people or structures downstream of the site to increased risk of flooding.**

As shown in Table 3.7-1, the proposed project would increase clear water runoff, which would increase surface flows that, if unchecked or uncaptured by storm drainage facilities, could result in flooding impacts at downstream properties. Although field observations by hydrologists suggest that postdevelopment stormwater flows could be effectively conveyed to existing facilities, no final drainage plan has been submitted to the City by the Applicant, such as detention basins, as well as the implementation of additional stormwater management practices as part of the site drainage plan, would be required to reduce postconstruction surface flows and ensure their conveyance to existing collection facilities. This impact would, therefore, be considered potentially significant. However, implementation of Mitigation Measures HYD-1 and HYD-2 would require the preparation of a final drainage plan and accompanying hydrology analyses for the project site, and would require construction of specific detention and conveyance structures, as well as implementation of slope stabilization measures, to ensure that

postconstruction surface flows are reduced to preconstruction levels and directed to existing collection facilities. Reductions of postconstruction surface flows to levels deemed acceptable under City standards, as well as capture of flows by the city storm drainage system, would reduce this impact to a ***less-than-significant*** level.

Surface Water Quality Impacts

Impact HYD-4 **Grading and construction activities on the project site have the potential to adversely affect surface water quality. These activities may increase erosion and contribute sediment to surface waters. Additionally, improper handling of construction materials and/or equipment may result in accidental spills that could adversely affect water quality.**

When the project is rough-graded, the potential for mud and discharge from the site would substantially increase during a rainstorm and would adversely affect the quality of surface flows. The amount of silt can be calculated based on potential sediment yield, acreage, and slope. Desilting basins and/or silt fences sized to retain this sediment, and sandbags placed at catch basin openings and at intervals on proposed roadways and stabilized construction entrances would substantially reduce sediment levels in site runoff.

Phasing of the project can also lessen the effect of construction-related discharge from the site by reducing exposure of disturbed areas to stormwater runoff. This proposed project will be subject to the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activity. Under this permit, the developer will be required to eliminate or reduce nonstormwater discharges and to develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must emphasize Best Management Practices (BMPs) to identify and reduce sediment and other pollutants in stormwater discharges during construction. The developer will retain a State of California-licensed civil engineer to select applicable BMPs and compile the SWPPP, based on final site characteristics, runoff potential, and project design needs. Typical measures that have been proven feasible and are commonly required are listed as Mitigation Measures HYD-4.1 and HYD-4.2. These measures will reduce Impact HYD-4 to a ***less-than-significant*** level.

Long-Term Surface Water Impacts

Impact HYD-5 **The proposed project has the potential for long-term adverse impacts to water quality from addition of pollutants typical of urban runoff. Additional automobile traffic generated from the proposed residential use of the site, as compared to the current undeveloped condition, could result in an increased incremental concentration of urban contaminants in stormwater runoff.**

There are no numerical water quality standards apply to stormwater or nonpoint-source pollution: current federal and State standards apply to point-source pollution. However, the impacts of urban runoff are now well understood, and federal municipal stormwater regulations require that pollutants in stormwater be reduced to the maximum extent practicable. Also, to be in compliance with the provisions of the NPDES General Permit for Construction Activity, the Los Angeles County Department of Public Works (LACDPW) has adopted its own Development Planning Model Program in the form of the Standard Urban Stormwater Mitigation Plan (SUSMP). Among other requirements, the SUSMP requires that development projects, including a residential subdivision with more than 10 lots or hillside-located, single-family dwellings, implement measures that

1. Effectively prohibit nonstormwater discharges
2. Reduce the discharge of pollutants from stormwater conveyance systems to the Maximum Extent Practicable

As part of the reduction of pollutants, the SUSMP requires the treatment or infiltration of stormwater runoff based upon volume. This may be accomplished by implementing structural treatment control BMPs specific to the kinds of pollutants that may occur with the development. Implementing effective BMPs would mitigate water quality impacts from stormwater runoff for the post-construction activities.

The City of La Cañada Flintridge has requirements for the treatment of the storm runoff per the SUSMP. These requirements include providing treatment and collection of runoff produced from a 0.75-inch storm event over the entire site, prior to its discharge to the offsite stormwater system, and controlling the peak flow discharge from the site. To accomplish these requirements, solutions could include detention basins with infiltration provisions. Stormwater detention requirements in accordance with SUSMP implementation will reduce the peak flow rates to before-development levels. The City will also require a CDS, "Stormceptors" (proprietary manufacturer), or other types of units to remove floating trash and debris and filter the stormwater prior to discharge of runoff off site. Catch basin inserts should not be used, because they are not effective in hilly conditions.

Surface water quality impacts will be reduced to a ***less-than-significant*** level with implementation of Mitigation Measures HYD-2, HYD-4.1, and HYD-4.2, which will implement measure to achieve the runoff quality requirements of the City and SUSMP.

3.7.5 Mitigation Measures and Residual Impacts

Mitigation measures below provide project specific items and typical requirements to be implemented and included in the construction and postconstruction portions of the SWPPP and SUSMP.

MM HYD-1 Prior to issuance of a grading permit, a precise grading plan, detention basin/cistern plan, pervious pavement designs, and final hydrologic/hydraulic analysis shall be submitted to the City of La Cañada Flintridge for review and approval. Detailed design of the project storm drain system shall be consistent with the recommendations of the final hydrologic/hydraulic analysis, shall conform to the requirements of the City of La Cañada Flintridge, and shall ensure that the postconstruction runoff volume from the project site does not exceed the existing runoff volume.

MM HYD-2 Site plans for the project shall implement the following recommendations:

- Construct a new debris basin upstream of the intersection of Bramley Way and Monarch Drive to intercept mudflows approaching from Bramley Way and the hilly terrain west of the recently constructed residence near the terminus of Bramley Way
- Provide a slough wall along the uphill side of Monarch Drive to help reduce mudflows that will be conveyed to Inverness Drive from the proposed storm drain system south of Lot 1
- Add drought-resistant vegetation with geosynthetic matting-fiber-mulch matrix to stabilize the slopes and reduce erosion along the uphill side of Monarch Drive

MM HYD-4.1 Prior to the issuance of a grading permit, the project applicants shall file a Notice of Intent (NOI) with the State of California and comply with the requirements of the NPDES General Construction Permit. This will include the preparation of a SWPPP incorporating BMPs for construction-related control of the site runoff. This will require construction sediment and erosion control plans in connection with site grading activities. A State of California-licensed civil engineer shall prepare a SWPPP, and the plan should be reviewed and approved by the City of La Cañada Flintridge. The SWPPP should also include the following applicable measures:

- Diversion of off-site runoff away from the construction site
- Prompt revegetation of proposed landscaped areas
- Perimeter sandbagging and silt fences and/or temporary basins to trap sediment
- Regular sprinkling of exposed soils to control dust during construction
- Installation of a minor retention basin(s) to alleviate discharge of increased flows
- Specifications for construction waste handling and disposal
- Erosion control measures maintained throughout the construction period
- Construction of stabilized construction entrances to avoid trucks from imprinting debris on City roadways
- Training of subcontractors on general site housekeeping

The SWPPP is a "live" document and shall be kept current by the person responsible for its implementation.

MM HYD-4.2 Prior to the issuance of any grading permit, the applicant shall submit a SUSMP that shall reduce the discharge of pollutants to the maximum extent practical using BMPs, control techniques and systems, design and engineering methods, and such other provisions that are appropriate. The SUSUMP shall include applicable post-construction measures, such as the following:

- Control of impervious area runoff, including installation of detention basins, retention areas, filtering devices, energy dissipaters, pervious drainage systems, and porous pavement alternatives
- Implementation of regular sweeping of impervious surfaces, such as streets and driveways;
- Use of efficient irrigation practices
- Provision of infiltration trenches and basins
- Linings for urban runoff conveyance channels
- Vegetated swales and strips
- Protection of slopes and channels
- Landscape design, such as xeriscape or other designs, minimizing the use of fertilizers
- Minimization of stormwater runoff through site design

- Construction of slough walls at toes of slopes for sediment control
- Provision of covered trash enclosures
- Provision of post-construction BMPs, such as approved stormwater filtration devices at the storm drain system in Monarch Drive and Haverstock Road
- Provision of proof of obtaining annual maintenance for the proposed basins and BMPs by the developer

3.7.6 Cumulative Impacts

The cumulative impact analysis considers development of the proposed project, in conjunction with other developments upstream and downstream of Subareas 1, 2, and 3. These cumulative projects will be various infill residential projects. Cumulative development within the City limits will generate similar hydrology and water quality impacts to those of the proposed project. Each of these projects will be subject to the same basic requirements and mitigation measures as the proposed project. Projects involving construction on sites that are one acre or greater in size will be required to implement a Stormwater Pollution Prevention Plan (SWPPP), and all hillside residences will be governed by the SUSMP adopted by City ordinance. Therefore, cumulative development within the City would not have a significant impact on hydrology and water quality.

Regionally and watershed-wide, future development could result in additional impervious areas, which could reduce groundwater recharge opportunities. Most of the City of La Cañada Flintridge is underlain by the Raymond Basin, which contains a groundwater aquifer. However, the project site is located in the San Rafael Hills, which is not a primary component of the Raymond Basin. Some local recharge—approximately 24 acres as estimated by pad size and roadway infrastructure area—will be lost because of structures and paving. The Arroyo Seco watershed encompasses approximately 61 square miles, equivalent to approximately 2,657,160 acres. The loss of approximately 24 acres of recharge area on the project site represents only 0.0007 percent of the total Arroyo Seco watershed area and is not significant from a regional perspective. Opportunities for groundwater recharge will continue to occur throughout the area drained by the Arroyo Seco watershed.

Locally, potential construction-related water quality and erosion effects are generally site-specific and would be controlled through implementation of State and local regulations, standards, and ordinances. Because the proposed project, as well as other development in the watershed, would comply with all relevant laws, regulations, and standards, neither the project's incremental contribution nor the cumulative effect of water quality impacts would be significant.

3.7.7 References

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California, State of. Governor's Office of Planning and Research. 2002. CEQA: *California Environmental Quality Act, Statutes and Guidelines*. Sacramento.

Los Angeles, City of. Stormwater Management Division. 2001. Standard Urban Stormwater Mitigation Plan for Los Angeles County and Cities in Los Angeles County.

La Cañada Flintridge, City of. 1994. *Comprehensive General Plan*. Adopted March 1980.

RWQCB (Regional Water Quality Control Board). 2001. Water Quality Control Plan: Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties.

Spindler Engineering Corporation, 2001. Hydrology and Preliminary Hydraulics for Tentative Tract 53647, August.

State Water Resources Control Board. 2001. General Construction Activity Stormwater Permit.

U.S. Environmental Protection Agency (U.S. EPA). 2000. *Stormwater Phase II Final Rule (EPA No. 833-F-00-0001)*, January.

3.8 LAND USE

This section describes the existing land use characteristics of the project site and the surrounding neighborhood, analyzes the potential conflicts of the proposed project with applicable land use plans and policies, and identifies potentially significant land use changes resulting from implementation of the proposed project. Land use issues associated with physically dividing an established community were determined to result in no impact in the IS/NOP, and no further analysis is required. Information for this section is based on the City of La Cañada Flintridge General Plan, and the La Cañada Flintridge Municipal Code.

3.8.1 Environmental Setting

City of La Cañada Flintridge Characteristics

The proposed project site is located in the City of La Cañada Flintridge, in Los Angeles County. The City of La Cañada Flintridge is bordered by the Angeles Forest on the north; the cities of Pasadena and Glendale on the east and south, respectively; and the unincorporated county areas of La Crescenta and Montrose to the west. The 8.6-square-mile City is situated approximately 13 miles northeast of downtown Los Angeles. Interstate 210 (Foothill Freeway) provides regional access to the City.

According to the 1993 General Plan, nearly 49 percent of La Cañada Flintridge's acreage is devoted to residential uses of varying densities, while approximately 14 percent is allocated to public/semi-public uses, which include government facilities, schools, churches, community facilities, and drainage infrastructure. Only 1 percent of the land is used for commercial purposes, and the remaining 36 percent of the land is distributed among open space/parks and transportation facilities, including roads and highways, or is vacant.

On-Site Characteristics and Land Uses

The proposed project site is located in the southern portion of La Cañada Flintridge in a residential neighborhood in the western portion of the San Rafael Hills. Access to the project site is via proposed extensions and improvements of Inverness Drive/Haverstock Road to the north, Saint Katherine Drive to the east, Palmerstone Drive to the south, and properties off Monarch Drive to the west.

The proposed project site encompasses approximately 47.11 acres and is currently undeveloped and vacant. Situated approximately 1,330 to 1,625 feet above mean sea level, the average slope of the entire project site is 48 percent. Significant topography characterizes the undisturbed hillside area, with slopes ranging from nearly level to almost vertical. A blue-line stream runs northeasterly through the western half of the property toward the Devil's Gate Reservoir and eventually discharges into the Arroyo Seco drainage channel. The eastern portions of the proposed project site accommodate a natural debris basin and associated ephemeral stream, which flows southeasterly toward the Arroyo Seco directly. Fill and other debris have been deposited on eastern portions of the property, as the site is located within a high debris-production area. On-site vegetation consists of untouched Chaparral-Coastal Sage Scrub mix, oak woodlands, and non-native annuals.

Surrounding Land Uses

Generally, the site is surrounded by large, single-family residential homes to the north, east, and west. Sacred Heart High School lies adjacent to the southern edge of the property. The boundary between the cities of La Cañada Flintridge, Pasadena, and Glendale lies approximately 0.25 mile south of the site.

Land Use and Zoning Designations

The General Plan Land Use Diagram identifies the site and the surrounding areas as Estate Residential. This land use category includes low density, single-family residential use and permits a maximum of 1 unit per acre. Located within close proximity, the area to the south of the project site is designated as Institutional. It should be noted that there are no applicable habitat conservation plans within the project area.

The project site and surrounding areas are zoned as R-1-40,000 (Single-Family Residential District with 40,000 sf Minimum Lot Area), under the City's Zoning Code. Land uses under the R-1-40,000 zone are limited to single-family residential. Conditionally permitted uses for this District include accessory living quarters and museums. As each lot on the proposed project site exceeds an average slope of 15 percent, the Hillside Development Ordinance would modify base lot size.

3.8.2 Regulatory Framework

The City of La Cañada Flintridge General Plan and Municipal Code provide regulations governing land use, which are intended to guide future growth and development within the City. The General Plan is the fundamental planning policy document of the City, providing a "blueprint" for the identification of the location of land uses, as well as the basic design and function of circulation, open space, and infrastructure policies, and public service needs. Zoning is used by the City to regulate where specific uses may be located and controls the size and types of such uses.

This section describes the land use regulatory setting for the proposed project. The regulatory setting is comprised of plans, policies, and regulations applicable to the proposed project, which are summarized below. General Plan Elements are listed, and the corresponding Goals and Policies that are applicable to proposed project under that element are then addressed. Lastly, the consistency of the proposed project with the applicable policies of each Element is then assessed.

Land Use Element

The following land use Goals and Policies listed in the Land Use Element of the City of La Cañada Flintridge General Plan have been developed to direct future growth in the City, while minimizing existing and potential land use conflicts. The Goals and Policies are designed to encourage balanced, compatible, complementary, environmentally sensitive, and safe development.

Balanced Development

Goal 1A Maintain and enhance the City's character as a low density, wooded, predominantly single-family residential and hillside community.

Policy 1.1 Preserve existing low density, single-family neighborhoods in La Cañada Flintridge.

Consistency: The proposed project would design 17 individual single-family residential lots within a hillside community. Approximately 32 percent of the area would remain undeveloped, the majority of which would become permanent open space. As a low-density, single-family residential development, the proposed project would be consistent with Goal 1A and associated Policy 1.1.

Compatible and Complementary Development

Goal 2 Ensure that new development is compatible with the residential character of the City, the project's surrounding land uses, the circulation network, availability of public facilities, and existing development constraints.

Policy 2.2 Ensure the character of existing neighborhoods is not detrimentally altered as a result of land divisions and/or new development.

Consistency: Although specific designs are unknown at this time, future development would be subject to the requirements of the Hillside Ordinance design standards, which would ensure that each structure complements the traditional architectural theme in order to be consistent with the City's established neighborhoods. Additionally, the proposed project would include necessary infrastructure improvements, such as extensions and improvements of existing streets surrounding the area, as well as public utilities and services to serve the proposed lots. Although the proposed project would be designed to fit as naturally as possible within the existing topography, the project would still require the extensive grading of hillsides. The lot sizes proposed by the project currently exceed maximum density allowable under the Hillside Ordinance. However, approval of the project, with the included Variance 02-10 would make the project consistent with "existing development constraints" and would therefore be consistent with Policy 2.2.

Environmentally Sensitive and Safe Development

Goal 3A Preserve and enhance, to the maximum extent possible, the natural and manmade scenic beauty of the community.

Goal 3C Coordinate public utilities and service with new development.

Policy 3.1 Ensure that future hillside development does not detrimentally impact environmental and recreational resources, is coordinated with available and potential circulation capacities, and is planned, designed and implemented with regard for natural environmental hazards and constraints.

Consistency: Construction of the proposed project would begin with filling, grading, and extension of a sediment drainage basin/ephemeral stream and the eventual addition of stormwater drainage systems, utilities, sewer lines, water lines, and road expansions. This EIR has also evaluated and addressed potential impacts to the capacity of roadways within the area, as well as hazards associated with the proposed project (Sections 3.05, 3.06, 3.07, and 3.12 of this EIR) and thus the proposed project would be consistent with these portions of the policy. Although the proposed project would alter existing topography and remove areas of native vegetation, the proposed project has designated, via a conservation easement, 18.36 acres as permanent open space and existing trails. The preservation of this 18.36-acre parcel in perpetuity would be a benefit to both wildlife and residents. Therefore, the proposed the project would be consistent with this policy regarding recreational resources. However, the infill of the entire debris basin and ephemeral stream, coupled with the loss of the surrounding riparian habitat and oak trees would detrimentally impact environmental resources of the area, and the proposed project would be *inconsisten*t with Policy 3.1.

Policy 3.2 Conduct appropriate environmental reviews for all projects affecting land use.

Consistency: The City has undertaken an appropriate environmental review of the proposed project under the laws and guidelines set forth under CEQA and the CEQA Guidelines, as amended; therefore, the proposed project would be consistent with Policy 3.2.

Policy 3.4 Continue to make incremental improvements to the flood control and drainage system.

Consistency: The proposed project would include improvements to the existing stormwater drainage system. Therefore, the proposed project would be consistent with Policy 3.4.

Policy 3.6 Develop plans for, and begin construction of residential sewers for all residential areas in order to enhance the quality of life in the City

Consistency: The coordination between these groups, and the addition of sewers to portions of the proposed project would be consistent with Policy 3.6.

Hillside Areas

Goal 4 Maintain hillside areas for the purpose of preserving the visual quality of the City, protecting the public from safety hazards, and conserving natural resources.

Policy 4.5 Ensure that land divisions or new development in hillside areas do not alter the character of existing neighborhoods.

Consistency: Specific design measures would be required to ensure that the proposed residential uses would be consistent with the existing neighborhoods in the surrounding area. The proposed project would, therefore, be consistent with Policy 4.5.

Policy 4.6 Encourage development to integrate La Cañada Flintridge's natural environmental settings and viewsheds, with building height and siting regulated to avoid obtrusive breaks in the natural skyline.

Consistency: As required under the Hillside Development Ordinance, project implementation would comply with appropriate building heights and siting regulated to avoid obtrusive breaks in the natural skyline. Therefore the proposed project would be consistent with Policy 4.6.

Policy 4.8 Continue to implement the City's Hillside Development Ordinance, which establishes standards to minimize land form alteration, preserves significant environmental features, and controls development densities.

Consistency: The proposed project would be required to comply with the Hillside Development Ordinance. Therefore, the proposed project would be consistent with Policy 4.8.

Policy 4.10 Review policies for approval of private septic systems in hillside areas prior to the availability of public sewers to assure the continued safe and healthful management of wastewater as steeper properties are developed.

Consistency: Prior to the issuance of a building permit, the City will review, per Section 11.35 of the Zoning Code, the design and performance of any private septic system to ensure its adequacy. The applicant and City have been in contact with the utility departments that will serve this proposed development. Review of any private sewer system will be performed during the environmental review process of this project, as well as prior to -the issuance of any building permits (per Los Angeles Regional Water Quality Control Board requirements). The project would, therefore, be implemented in a manner that is consistent with this goal and policy.

Residential Mansionization

Goal 6 Protect the City's character as a low density, predominantly single-family residential and hillside community.

Policy 6.3 Ensure that the size and design of new development is compatible with existing residential uses.

Consistency: If approved, the proposed project would be subject to the hillside development standards set forth in the Hillside Ordinance (Chapter 11.35 of the Zoning Code). Consequently, the size and design of individual houses resulting from the proposed lot division would be consistent with the prevailing size and character of lots in the immediate vicinity and would be consistent with Policy 6.3.

Policy 6.4 Encourage new developments to utilize architectural features that are compatible with the surrounding neighborhood.

Consistency: The design and architecture of individual houses resulting from the proposed lot division would be consistent with the prevailing size and character of lots in the immediate vicinity and would be consistent with Policy 6.4.

Residential Lot Splits

Goal 7 Establish land division practices that preserve the City's predominantly single-family residential character.

Policy 7.3 Prohibit flag lots to preserve the quality and character of existing residential neighborhoods and to ensure adequate emergency vehicle access.

Consistency: The proposed project does not include any flag lots, and project plans will be subject to review by the City and the County Fire Department to ensure adequate emergency vehicle access. Therefore, the proposed project would be consistent with Policy 7.3.

Housing Element

The Housing Element embodies the City's perspective on local and regional housing problems, including goals, policies, and programs which address the City's fair share of regional housing needs. Due to State funding limitations, no revisions of the City's fair share numbers are available at the time of adoption, and, therefore, the goals address only those numbers that have previously been identified for the City. The City's infrastructure constraints, the built out character of the City, and the topography of the remaining vacant land provide substantial restrictions on the ability to develop new housing, regardless of price. The following goals and associated policies and programs have been developed by the City to address the City's housing needs. The goals identified in the City's General plan applicable to the proposed project are centered on housing adequacy, the availability of affordable housing, equal housing opportunities, and removal of constraints to housing development. The following is a synopsis of the applicable General Plan Housing Element Goals and associated Policies:

Goal 1.0 Provide a variety of types and adequate supply of housing to meet the existing and future needs of City residents.

Policy 1.1 Provide a range of residential development types in the City, including low density single-family homes, Accessory Living Quarters (second units), moderate density apartments and condominiums, and mixed-use residential development, in accordance with the Regional Housing Needs Assessment (RHNA).

Policy 1.2 Encourage the private sector to produce housing with particular emphasis on underserved segments of the community.

Policy 1.4 Assist residential developers in identifying land suitable for new housing development.

Policy 1.5 Support the dispersion of Accessory Living Quarters throughout the City's lower density single-family neighborhoods.

Policy 1.6 Encourage the development of residential units that are accessible to handicapped persons or are adaptable for conversion to residential use by handicapped persons.

Policy 1.11 Monitor all regulations, ordinances, departmental processing procedures, and fees related to the rehabilitation and/or construction of dwelling units to assess their impact on housing costs.

Consistency: The proposed project will construct 17 residential lots with buildable pads for above moderate-income housing units. As seen in Table 3.13-7, the most recent housing needs projected for La Cañada Flintridge by SCAG requires that 58 percent of the total new housing units be above moderate-income housing units. The proposed project does not provide housing with particular emphasis on the underserved segments of the community; however, the combined need for such very low- and low-income housing is lower at 26 percent than the above moderate-income housing need addressed by the proposed project. In addition, as developable land is limited to such mountainous areas of La Cañada Flintridge as this project area, above moderate-income housing would be the most likely development to occur on the site with resulting custom housing providing opportunities for specialized housing features, such as handicapped access, as needed. Therefore, due to the need for above moderate-income housing and a mixture of housing type within La Cañada Flintridge, the proposed project would be consistent with these policies and goal.

Goal 2.0 Maintain and enhance the quality of existing residential neighborhoods in the City.

Policy 2.2 Amend the development standards of the R-1 zone in order to better relate development to the size and shape of the lot and scale of the surrounding neighborhood in order to discourage mansionization, consistent with the goals and policies of the Land Use Element.

Consistency: Proposed housing will, with approval of the accompanying Variance 02-10, comply with the La Cañada Flintridge Hillside Ordinance, which refines development standards of the R-1 zone in order to discourage mansionization and not detract from surrounding neighborhood areas with inconsistent lot sizes and shapes. Future house owners on the project site would be subject to current codes and would, therefore, be required to properly maintain the property Therefore, due to adherence to these ordinances and standards of the City of La Cañada Flintridge, the proposed project would be consistent with the above policy.

Goal 3.0 Ensure that new housing is sensitive to the existing natural and built environment.

Policy 3.2 Protect residential neighborhoods from excessive noise, traffic, and incompatible land uses.

Policy 3.3 Require that new residential development is coordinated with the provision of infrastructure and public services.

Policy 3.4 Improve standards for adequate, off-street parking space for vehicles (including garages from single-family dwellings) with safe access to streets and highways.

Policy 3.5 Encourage the use of energy conservation devices and passive design concepts that make use of the natural climate to increase energy efficiency and reduce housing costs.

Consistency: The proposed project will construct 17 residential lots with buildable pads in a previously undeveloped area. Proposed development will, with approval of the accompanying Variance 02-10, follow Hillside Development Ordinance standards for compatibility in size and scale, with existing uses and be accompanied by planned extension of infrastructure and public services. In addition, noise-and traffic-related mitigation measures, as well as the addition of adequate off-street parking in conjunction with the provision of garages in the project area will aid in safer and quieter access to streets and highways. Finally, project-related residential construction will be encouraged to incorporate energy conservation devices, methods, and materials. Therefore, due to provision of compatible land uses and coordinated infrastructure and public services, the proposed project would be consistent with these policies.

Circulation Element

The La Cañada Flintridge circulation and transportation systems play important rolls in shaping the overall structure and form of the City. The City's Circulation Element of the General Plan identifies the existing circulation system related issues, sets goals and policies, and provided a comprehensive circulation plan. Policies from this Element that are applicable to the proposed project are identified and addressed below.

Balanced Functional and Efficient Street System

Goal 1: Maintain a safe, efficient, economical, and aesthetically pleasing transportation system providing for the movement of people, goods, and services to serve the existing and future needs of the City of La Cañada Flintridge.

Policy 1.4 Require new developments to conform to the standards and criteria of the City and other mandated programs. This includes mitigation of traffic impacts to the surrounding street system.

Consistency: Meyer Mohaddes Associates, in cooperation with the City Traffic Engineer, has assessed the impacts of the proposed project and included mitigation to address construction-related traffic related issues, which would be consistent with Policy 1.4.

Trails System

Goal 8 Preserve existing trails and promote coordinated and comprehensive trail systems for bicyclists, equestrians, and hikers.

Policy 8.1 Cooperate with public agencies, public utilities, and private organizations and property owners to maintain and keep in good repair all recreational trails, and seek to prevent loss or access to existing trails by encroachment or interference from abutting property.

Policy 8.2 Continue to seek dedication of land and/or fees in lieu of such dedication for recreational trails as a requirement of new residential land divisions, where such dedications or fees have the opportunity to augment the existing trails system.

Policy 8.3 Cooperate with public agencies, public utilities, and private organizations to promote the use and development of trails facilities on their land.

Consistency: The proposed project would provide approximately 18.36 acres of dedicated open space, including any existing unimproved trails. By providing this dedicated open space and quasi-recreational area, the proposed project would be consistent with these City goals and policies.

Environmental Resource Management Element

The Environmental Resources Management Element of the General Plan addresses managing future development in hillside areas; establishing and maintaining a network of recreation facilities; preserving key historical features for future generations; and maintaining a high degree of respect for unique and sensitive features of the community's natural landscape and environment. Goals and Policies applicable to the proposed project are addressed below.

Hillside Development

Policy 4.1 Prominent landforms within the community included, but not limited to, ridges, knolls, valleys, creeks or other unique topographic features or viewscapes shall be maintained in their natural state to the maximum extent feasible (see also Section 3.1, Aesthetics).

Consistency: The knoll near the center of the Flintridge Properties project site is designated by the City as a Significant Land Form. The peak of the knoll is near the eastern edge of Lot 18; the flanks extend into Lots 10 through 13 to the north, 2 through 8 to the east, and 9 to the south. The proposed mass grading and eventual construction of residences on the flanks of this knoll would be *inconsistent* with Policy 4.1.

Policy 4.2 Major hillside viewscapes visible from points within the City should not be detrimentally altered by the intrusion of highly visible cut or fill slopes, building lines and/or road surfaces (see also Section 3.1, Aesthetics).

Consistency: The proposed project would preserve and protect foreground and some distant ridgeline and mountain views, as well as a majority of mid-ground views to and from hillside areas. However, the development of Lots 10, 11, and 13 would create a 190-foot-high, terraced, cut-and-fill slope approximately 730 feet long, including the building pads, access road, and graded hillsides adjacent to the pads. The development of Lots 4 through 7 would create a similar terraced, cut-and-fill slope approximately 100 feet high and 490 feet long. In Lot 9, the dimensions of a similar terraced, cut-and-fill slope would be 50 feet high and 200 feet long. All these terraced, cut-and-fill slopes would not be visible from any single location, but each would be visible from several locations. The proposed mass grading and eventual construction of residences on the flanks of this knoll would be *inconsistent* with Policy 4.2.

Policy 4.3 The visual impact of grading should be minimized. Man-made slopes should be landscaped and irrigated to prevent erosion and to soften the finished appearance of the slope. (See also Section 3.1, Aesthetics).

Consistency: Although no current revegetation plan exists, grading for lots and roadways will be minimized to the maximum extent possible. Individual lots will require Hillside Development Permit (HDP) approval with Planning Commission oversight. As the HDP requires a plan to minimize grading and revegetate affected areas to minimize visual impacts, the proposed project would be consistent with Policy 4.3.

> Policy 4.4 Development in hillside areas should be planned and designed in a manner as to avoid flood, mudslide, and subsidence hazards, to residents and structures on or near hillside areas as well as downhill of any project.

Consistency: The project site is not susceptible to subsidence or on-site flooding. Off-site flooding, as a result of project implementation, is possible but unlikely, because appropriate drainage practices and systems will be required by the City (see Section 3.7, Hydrology and Water Quality).

Mudflows from saturation of graded areas also are unlikely for the same reason. Areas downslope of graded building sites, particularly Lots 10 through 13, could be susceptible to mudflows if the proposed drainage practices and systems were not designed to slow runoff rates at their outfalls or were not properly maintained.

The project site is not susceptible to subsidence or on-site flooding. Off-site flooding, as a result of project implementation, is possible but unlikely, because appropriate drainage practices and systems will be required by the City (see Section 3.7 [Hydrology and Water Quality]). However, due to the proposed elimination of the existing debris basin and the construction of Monarch Drive and Lots 2, 3, and 8, noticeable debris deposition will occur at the intersection of Bramley Way and Monarch Drive intersection and at the existing 48" outfall at Inverness Road. The current project plans do not address debris containment or engineering controls adequately (see Section 3.7 [Hydrology and Water Quality]); however mitigation measures included within those sections will reduce the impacts accordingly. Therefore, after mitigation, the proposed project would be consistent with Policy 4.4.

> Policy 4.5 Approval of hillside development proposals should be granted only if proper soil reports, hydrology reports, bedrock foundation reports, and similar engineering and other technical reports have been submitted and satisfactorily reviewed in order to ensure safe developments (see also Section 3.07 [Hydrology and Water Quality] and Section 3.12 [Transportation and Circulation]).

Consistency: The geological and soils engineering exploration and report completed for the purpose of submitting the Tentative Tract Map and completing the environmental review was performed on only a portion of the site and cannot be considered as indicative of the portions of the site not explored. However mitigation measures included within Section 3.5 Geology and Soils, require a complete geological and soils engineering exploration and report. Therefore, after mitigation, the proposed project would be consistent with Policy 4.5.

> Policy 4.6 To ensure proper hydrologic drainage and bulked-flow runoff natural stream gradients should not be reduced.

Consistency: There is an existing blue line stream at about 160 feet west of the proposed Lots 10, 11, and 13. Site drainage from Lot 10 will be discharged directly via a storm drain into the stream. Provided that permitting

requirements from the regulatory agencies for the construction of the storm drain are met, the current project plans address drainage issues into this stream adequately. The ephemeral drainage that runs through Lots 2, 3, and 8 will be modified and placed into a storm drain at approximately the same gradient that currently exists; therefore, the proposed drainage plan for the proposed project would be consistent with Policy 4.6.

Policy 4.7 Developments adjoining areas of high fire risk should be required to implement measures to reduce the risk of property damage and hazard to people as well as loss to the valuable watershed. Proper fuel breaks between the fire risk area and habitable structures shall be maintained.

Consistency: The proposed project would ensure adequate fire protection and access to the existing residents by building the dedicated roadways and adding fire protection to the area. The provision of roadways would provide a safer means of emergency equipment access. In addition, fire protection would be upgraded, with the development of homes incorporating the most recent and stringent requirements of the Los Angeles County Fire Code. All building plans in this Hillside District shall be reviewed and approved by the Los Angeles County Fire Department for conformance with such requirements. The proposed project would incorporate the use of special design requirements applicable to steep slopes/high fire hazard areas outlined in the Hillside Development Standards of the La Cañada Flintridge Municipal Code. In addition, Mitigation Measures 3.10-1 through 3.10-6 would help minimize future fire hazards and exposure of persons to fire hazards. Finally, the proposed project would include the provision of trees and other re-vegetation techniques with future individual home construction that would help minimize fire hazards through weed and brush removal as well as the planting of fire retardant materials. Therefore, it is assumed that implementation of these goals, policies, and mitigation measures would be carried out, and by building roadways and adding fire protection to the canyon through the provision of special design requirements applicable to such hillside development, the proposed project is consistent with Policy 4.7.

Historic and Archaeological Resources:

Policy 4.11 Archaeological investigations should be required of large, undeveloped sites for which development is proposed as required for compliance with the California Environmental Quality Act.

Consistency: As described above in Subsection 3.4.1 (Existing Conditions), an archaeological records check, literature search, and site survey were conducted for the project site. Additionally, a sacred lands file check was obtained through the California Native American Heritage Commission, and Native American representatives were contacted for any additional information regarding cultural resources on the project site. The analysis contained in this section is based upon these studies, which were completed by qualified professional archaeologists, and is, therefore, consistent with Policy 4.11.

Water Resources

Policy 4.12 Review should be required of all development projects, which have a potential for causing a deterioration of ground water quality beyond standards imposed by the State Water Quality Control Board to assure compliance with State and Federal standards. Methods

should be developed by which activities detrimentally impacting groundwater quality can be controlled.

Compliance: Hydrology and water quality studies completed on behalf of the City indicate that surface and ground water quality impacts will be reduced to a less-than-significant level with implementation of the mitigation measures proposed within this section, and the proposed project would be consistent with Policy 4.12

Soils

Policy 4.15 Means that establish minimum standards for grading, excavation, cutting and clearing of vegetation, revegetation of cleared areas, drainage control, and protection of exposed soil surfaces should be adopted to control erosion, sediment production, mudslides, and other earth movements.

Consistency: The City's Building Code (La Cañada Flintridge Municipal Code Title 7, Chapter 7.08) and Hillside Development Ordinance (La Cañada Flintridge Municipal Code Title 11, Chapter 11.35) provide the minimum standards for the listed activities. Drainage control and erosion control also are regulated by Los Angeles Regional Water Quality Control Board through the NPDES permitting process. Therefore, by adhering to these standards, the grading, excavation, clearing, revegetation, drainage, and erosion control plans for the proposed project site would be consistent with Policy 4.15.

Open Space: Preservation of Unique Resources

Policy 4.16 The rural, hillside character of the community should be maintained by regulation and development control, thus preserving the unique setting and significant resources in the San Gabriel Mountains and San Rafael Hills.

Consistency: The proposed project is subject to regulations and ordinances (i.e., Hillside Development Ordinance) that were designed to protect the significant resources of the hillside areas. These regulations require discretionary approval from the City to ensure compliance. As such, the proposed project is consistent with Policy 4.16.

Policy 4.17 Publicly owned open space land shall be retained as such. Reasonable efforts should be made to acquire large portions or privately owned hillside properties that contain such significant community features and resources as natural chaparral and wildlife habitat, areas of passive recreation, settings for riding and hiking trails, and outdoor education, and other community-wide hillside amenities.

Consistency: The proposed project would provide 17 custom home sites within a varied topography of the San Rafael Hills. A substantial portion of the project site will remain undeveloped (approximately 35 percent), and a portion containing natural vegetation and wildlife habitat will be preserved via a conservation easement or other deed restriction, allowing for residents to enjoy the natural beauty of the remaining open space. These actions would make the proposed project consistent with Policy 4.17.

Open Space: Recreation

Goal 1.7 Preserve and expand non-vehicular access to the Angeles National Forest trails and open lands remaining in the San Rafael Hills and San Gabriel Mountains. Encourage the dedication of additional lands to open space.

Goal 1.9 Preserve existing trials and promote coordinated and comprehensive trail system for bicyclists, equestrians, and hikers.

Policy 4.18 When economically feasible and consistent with proper planning and land use objectives of the community, the City should acquire and/or develop playfields (softball, soccer, etc.), picnic grounds, and other similar recreational facilities. The city should also seek dedication of land and/or fees in lieu of such dedication for recreational purposes as a requirement of new residential land divisions.

Consistency: The proposed project would preserve and provide, through a conservation easement or other deed restriction, approximately 18.36 acres of natural vegetation and wildlife habitat within the San Rafael Hills, including any existing unimproved trails. By providing newly dedicated open space and quasi-recreational area, the proposed project would be consistent with this Policy.

Seismic Safety

Policy 4.25 The City's building and development regulations and emergency services plan should be designed to reduce potential hazards associated with seismic activity.

Consistency: The City's Building Code (La Cañada Flintridge Municipal Code Title 7, Chapter 7.08) provides the minimum standards for seismic-resistance design of buildings and man-made slopes. Therefore, by adhering to these standards, the grading and construction plans for the proposed project would be consistent with Policy 4.25.

Conservation

Policy 5.7 The City shall encourage the La Cañada Flintridge Historical Society in its efforts to preserve sites, literature, and other items important to the community's heritage.

Consistency: Although no historic or prehistoric sites are anticipated on the project site, the results of any investigations that may arise from discovery or previously unknown, unique archaeological sites shall be provided to the Historical Society, as required by MM CR-2. This project would, therefore, be consistent with Policy 5.7.

Air Quality Element

The City of La Cañada Flintridge Air Quality Element is intended to protect the public's health and welfare by implementing measures that help the City as well as the South Coast Air Basin to attain federal and state air quality standards.

Public Improvements

Goal 2 Reduce air pollution by proper planning for transportation infrastructure.

Policy 2.1 Continue to participate in the Arroyo-Verdugo Transportation Coalition to coordinate infrastructure policies and programs with adjacent and nearby cities in order to develop a needed areawide transportation infrastructure.

Consistency: This project will provide low-density residential housing, which is in compliance with the Zoning Code for the City of La Cañada Flintridge. As discussed earlier in this document, the AQMP was prepared to accommodate growth, reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, return clean air to the region, and minimize the impact on the economy. Therefore, the proposed project would be consistent with Policy 2.1.

Community Design Element

The City of La Cañada Flintridge maintains a distinctive community that blends with the surrounding topography, the net visual impact of which is its semi-rural appearance, winding streets, and extensive areas of native vegetation. The Community Design Element of the City's General Plan was designed to preserve this aesthetically pleasing and distinct community by developing Goals and Policies that would address the current and future design and construction practices. Policies from this Element that are applicable to the proposed project are identified and addressed below.

Goal 1.1 Encourage overall development of the community in a manner which is visually pleasing, which preserves and enhances the semi-rural character of the local environment, and which protects the scenic qualities of the community.

Policy 4.1 The City's development regulations should include specific provisions to ensure the preservation of significant landforms and to guarantee that future hillside residential development is consistent with the best examples of existing development. Significant landforms are any ridges, knolls, valleys, creeks (either dry or active), or other unique topographic features or viewscapes as depicted on the Environmental Resource Management Map of the City's General Plan.

Consistency: The knoll near the center of the Flintridge Properties project site is designated by the City as a Significant Land Form. The peak of the knoll is near the eastern edge of Lot 18; the flanks extend into Lots 10 through 13 to the north, 2 through 8 to the east, and 9 to the south. The proposed mass grading and eventual construction of residences on the flanks of this knoll would be *inconsistent* with Policy 4.1.

Policy 4.2 The City should encourage residences developed in hillside areas to be designed, landscaped, and built of materials that blend with the existing environment.

Consistency: Portions of the completed estate development will be situated within the naturally existing topography and will be visible not only to some of the neighboring residents. Specific design programs will ensure that each home that is proposed will remain true to the architectural guidelines of the City of La Cañada Flintridge. In addition, every detail, from retaining walls to mature tree and native vegetation preservation/planting, must be consistent with that of the City's Hillside Ordinance. Therefore, the proposed project would be consistent with Policy 4.2

Policy 4.5 The appropriate use of landscaping should be encouraged in conjunction with architectural review of any structure and utilization of any setback.

Consistency: The proposed project includes future individual lot development review where enforcement of the required Hillside Ordinance landscaping policies, including trees and other vegetation, would occur and ensure erosion control and aesthetic quality consistent with the surrounding area, while minimizing adverse aesthetic impacts of slope cutting and grading to the extent feasible. Therefore, the proposed project would be consistent with Policy 4.5

Noise Element

The Noise Element incorporates noise standards developed from the California General Plan Guidelines (1998), as modified by the City of La Cañada Flintridge (1980) as the primary tool that the City uses to assess the compatibility between land uses and outdoor noise. Based on these standards, exterior noise levels of 60 dBA CNEL and lower are "normally acceptable" for single-family residential uses. "Normally acceptable" is defined as the highest noise level that should be considered for the construction of new buildings that incorporate conventional construction techniques, but with closed windows and fresh air supply systems.

Goal 1.1 Provide for a residential environment free from unwarranted and offensive noise.

Policy 4.4 The City should, in its regulation of activities in residential zones, prevent noise levels in excess of those appropriate to residential living.

Consistency: The proposed project would be constructed using techniques and materials that would reduce the interior ambient noise levels up to 30 dBA. In addition, due to the location and type of development which is planned, a very slight increase in ambient noise may be generated due to the operation of the propose project. Therefore, the proposed project would be consistent with Policy 4.4.

Safety Element

The Safety Element of the General Plan is concerned with the development of appropriate policies and measures designed to mitigate the effects of natural or man-made hazards. As such, it provides policy inputs to physical development so that unnecessary exposure to those hazards can be avoided or minimized. The purposes are to identify the nature and extent of the hazards, evaluate the risks involved and to design policies and programs to

reduce loss of life and property in the event of a major disaster. The General Plan Policies below have been enacted to address this responsibility.

Goal 1.1 Develop plans and programs to reduce danger to life and property from natural and manmade hazards, with special attention to fire, flood, and slides.

Goal 1.2 Develop plans and programs to provide for rapid and effective response to disasters and threats of danger to life and property.

Policy 4.1 *New Development*: Proposals for new development should be required to incorporate designs, which minimize problems of crime, flood, mudflows, slides, and fire.

Policy 4.3 *Vegetation*: A combination of brush clearance, irrigated areas, and fire-resistant planting should be provided adjacent to large areas of native vegetation to serve as a buffer between highly hazardous natural fuels and developed areas.

Policy 4.8 *Disaster*: An emergency services plan should be maintained for the coordination of services in response to disasters.

Consistency: The proposed project will be subject to the existing Emergency Response Plan, which is maintained by the Emergency Response Coordinator for the City of La Cañada Flintridge. The proposed project would incorporate the use of special design requirements and be subject to the fuel modification plan outlined in Subsection 3.6.2, which involves the reduction of high fire risk vegetation within the area. These measures would make the project consistent Policies 4.1, 4.3, and 4.8.

City of La Cañada Flintridge Hillside Development Ordinance (Chapter 11.35)

The City of La Cañada Flintridge Zoning Ordinance includes regulations for permitted uses, project design and development standards, parking requirements, application requirements, hearing procedures, and other information regarding land use and development in the City. Currently, the property is zoned R-1-40,000, which permits single-family residential development within the site with a minimum lot size of 40,000 sf. However, the Hillside Development Ordinance takes precedence over the base lot size through a sliding slope factor, described below, that is used to calculate the minimum lot size for hillside lots.

The Hillside Development Ordinance regulates through parcel standards and guidelines, including density and lot configuration, as well as grading techniques and review approval for slopes and drainage. For instance, any grading volume exceeding 50 cubic yards, whether or not retained, is subject to director's review and approval or incorporation into a higher level of approval. Maximum allowed building height is 28 feet, measured from the lowest finished grade adjacent to the building or directly beneath a projecting wall surface to the highest roof structure, aside from specific exceptions as measured from the same grade. With regard to view preservation, buildings shall be placed in a manner that minimizes blockage of neighboring views, especially those portions of

any view that are central to the total view, and/or are viewed from primary living areas (living rooms, dining rooms, or foyers).

Additionally, project siting with setback dimensions, preservation guidelines; vehicular access, such as driveways and streets; and parking are regulated. Further, building dimensions, architectural design guidelines, landscape and lighting guidelines, application materials, project approval, and applicable permits are set forth in the Ordinance.

Provisions of the Hillside Development Ordinance apply to parcels of land having average slopes of 15 percent or greater and to previously graded hillside lots, the slope of which had been equal to or greater than 15 percent prior to grading and for which no building permits are currently in effect. As such, City hillside development permit approval is required for any project requiring a building permit on a hillside with a slope of 15 percent or greater.

A slope factor guideline within the Ordinance regulates the minimum allowable square footage for each parcel of land divisions. The slope factor is a development standard for land divisions and a guideline for floor area restrictions. As average lot slope increases, the allowable minimum lot size shall increase, and the maximum floor area ratio shall decrease by a specific interval.

Policy 11.35.020

The following Policies are reflective of community standards and shall apply to all hillside development projects undertaken in the City:

> Policy A — Existing community character, as defined by such factors as visual appearance, density, road widths and vegetation shall be preserved and/or enhanced.

Consistency: Although the proposed project will significantly alter the visual appearance and natural vegetation at the site, development standards within the Hillside Ordinance will ensure that consistency with the surrounding residential community is mandated, and that impacts to community character are minimized to the maximum extent possible. Therefore, the proposed project would be consistent with Policy A of the Hillside Ordinance.

> Policy B — Prominent landforms within the community, including, but not limited to ridgelines, knolls, valleys, creeks (either dry or active), or other unique topographic features or viewscapes, shall be maintained. The most significant of such landforms are identified in the prominent landform policy of the City's General Plan.

Consistency: The knoll near the center of the proposed project site is designated by the City as a Significant Land Form, and the proposed project will alter this landform significantly. Additionally, as proposed, the project shall fill an ephemeral stream and alter multiple ridgelines. As described further in Section 3.1 (Aesthetics) these proposed alterations would result in significant and unavoidable impacts and would, therefore, be *inconsistent* with Policy B of the Hillside Ordinance.

> Policy C — Major hillside viewscapes visible from points within the City shall not be detrimentally altered by the intrusion of highly visible cut and/or fill slopes, building lines and/or road surfaces.

Consistency: The development of Lots 10, 11, and 13 would create a 190-foot high terraced, cut-and-fill slope approximately 730 feet long, including the building pads, access road, and graded hillsides adjacent to the pads. The development of Lots 4 through 7 would create a similar terraced, cut-and-fill slope approximately 100 feet high and 490 feet long. In Lot 9, the dimensions of a similar terraced, cut-and-fill slope would be 50 feet high and 200 feet long. All these terraced, cut-and-fill slopes would not be visible from any single location, but each would be visible from several locations. The proposed project would, therefore, be *inconsistent* with Policy C of the Hillside Ordinance.

Policy D The visual impact of grading shall be minimized.

Consistency: The proposed project must comply with the Hillside Ordinance, which has in place methods by which the effects of grading are minimized. As each parcel would be required to obtain a Hillside Development Permit, which would enforce the regulations of the Hillside Ordinance, the proposed project would be consistent with this Policy.

Policy E Levels of development shall be coordinated with available and potential circulation capacities and shall be controlled by the ability to provide adequate access within the constraints defined in this chapter.

Consistency: The traffic report prepared for the proposed project indicated no significant decrease would occur in the Level of Service of intersections or street segments within or adjacent to the proposed project area. Therefore, the proposed project would be consistent with Policy E of the Hillside Ordinance.

Policy F Development in areas of exposure to high fire risk shall be subject to reasonable mitigation measures formulated during the project review process to reduce such risk.

Consistency: The proposed project would incorporate the use of special design requirements applicable to steep slopes/high fire hazard areas, as outlined in the Los Angles County Fire Code. Incorporation of these design requirements, and review of the site plan by the City and County Fire Departments, would ensure that the proposed project is consistent with Policy F of the Hillside Ordinance.

Policy G Development shall be planned in such a manner as to avoid flood, mudslide, and subsidence to residents and structures on or near hillside areas as well as downstream of any project.

Consistency: The project site is not susceptible to subsidence or on-site flooding. Off-site flooding as a result of project implementation is possible but unlikely, because appropriate drainage practices and systems would be required by the City (see Section 3.7, Hydrology and Water Quality). However, due to the proposed elimination of the existing debris basin and the construction of Monarch Drive and Lots 2, 3, and 8, noticeable debris deposition would occur at the intersection of Bramley Way and Monarch Drive, as well as the existing 48" outfall at Inverness Road. The current project plans do not address debris containment or engineering controls adequately. However, mitigation measures introduced in Section 3.7 (Hydrology and Water Quality) address this

issue; therefore, the proposed drainage plan for the proposed project site would be consistent with Policy G of the Hillside Ordinance.

Policy H — Significant environmental and recreational resources shall be maintained and enhanced, including measures to prevent visual or physical encroachment into such resources.

Consistency: Although the Applicant has worked with the City to incorporate input from environmental planners and resource agencies into the design plan, significant unavoidable impacts resulting from the alterations of the existing ridgelines and a Significant Land Form, the loss of the ephemeral stream and associated vegetation, and impacts to the aesthetics of the area would remain, and the project would be *inconsistent* with Policy H.

Policy I — New lots created under the provisions of this chapter shall be properly planned and designed to result in development, which is in conformance with this chapter.

Consistency: Using the Slope Density Study (Spindler Engineering, 2001), the proposed site has an average slope of 48.26 percent, the minimum lot size guideline allowable under the Hillside Ordinance is 114,285 square feet (sf) (2.62 acres) which, in turn, sets the maximum number of lots buildable under the Hillside Ordinance at 17. The proposed 18 lots exceeds the maximum number of lots (17) that can be built on the project site, and only one of the proposed lot sizes meet the 114,285-sf minimum (Table 3.8-1). However, the proposed project includes Variance 02-10, which, if approved as part of the project, would make the proposed project consistent with Policy I of the Hillside Ordinance.

Lot Sizes and Building Footprints (11.35.041)

As discussed above, the Hillside Development Ordinance permits a maximum of 17 lots with a minimum square footage of 114,285 sf (Spindler Engineering, 2001). The development standards of the Hillside Ordinance also regulate the maximum allowable floor area for each of the proposed lots (Section 11.35.041). These maximum footprints are shown in Table 3.8-1.

Consistency: The proposed project would divide 47.11 acres of land into 18 lots of single-family residential units and open space ranging in size from 0.92 acre up to 18.36 acres. As shown in Table 3.8-1, all lots are greater than 40,000 sf required by the Municipal Code, but the minimum lot size standard allowable under the Hillside Ordinance is 114,285 sf (2.62 acres), and the maximum number of lots buildable under the Hillside Ordinance is 17. The proposed 18 lots exceed the maximum number of lots (17) that can be built on the project site, and only one of the proposed lot sizes meets the 114,285 -sf minimum. However, approval of the proposed Variance 02-10 would permit the project to vary from the lot size and density standards, and then could be consistent with the Hillside Ordinance if Variance 02-10 is approved.

3.8.3 Thresholds of Significance

In accordance with the CEQA Guidelines, the following standards were used to evaluate the potential for land use impacts that may result from construction or operation of the proposed project:

Table 3.8-1 City of La Cañada Flintridge Tentative Tract 53647 Lot Sizes and Building Footprints

Lot Number	Acreage	Square Footage (Proposed)	Slope %	Minimum Lot Size	Max. Building Footprint sf	Lot Size Compliance
1	1.83	79,714.8	45	114,285	6,471	No
2	1.24	54,014.4	49	114,285	2,341	No
3	0.99	43,124.4	47	114,285	2,250	No
4	1.52	66,211.2	49	114,285	3,073	No
5	1.87	81,457.2	61	114,285	2,658	No
6	1.22	53,143.2	55	114,285	1,526	No
7	0.92	40,075.2	59	114,285	1,003	No
8	0.92	40,075.2	58	114,285	1,003	No
9	1.93	84,070.8	45	114,285	6,907	No
10	2.02	87,991.2	55	114,285	2,920	No
11	1.10	47,916.0	49	114,285	1,975	No
12	0.93	40,510.8	38	114,285	3,725	No
13	0.95	41,382.0	48	114,285	1,847	No
14	2.13	92,782.8	42	114,285	9,334	No
15	1.01	43,995.6	49	114,285	1,740	No
16	2.19	95,396.4	44	114,285	8,683	No
17	1.36	59,241.6	46	114,285	3,982	No
18 (open space)	18.36	799,761.6	46	114,285	N/A	Yes

Source: Spindler Engineering , 2003

- Incompatibility with adjacent land uses, or potential to cause a substantial adverse change in existing land use patterns
- Substantial alteration of the type or intensity of development in the immediate area
- Inconsistency with applicable adopted land use plans, policies and regulations

3.8.4 Impacts

Beneficial Impacts

Open Space

Project implementation would result in the loss of approximately 34.28 acres of undeveloped areas within a hillside area. However, the project site is currently zoned as residential, and as a result of the project approximately 21 percent of the project area would remain in its natural state and be preserved as newly created permanent open space. Additionally, at least 18.36 acres of this 32 percent would be placed into a conservation easement and preserved in its approximate present state. Therefore, as the proposed project would increase dedicated open space within the City, impacts to open space would be beneficial.

Less-Than-Significant Impacts

Compatibility with Surrounding Land Uses

Implementation of the project would require construction activities, such as grading of the site, which would result in temporary, short-term air quality nuisance impacts from dust and construction equipment; noise from construction activities; and temporary impacts on local roadways due to additional traffic. These land use compatibilities/incompatibilities are addressed in the appropriate sections within this DEIR, but potential significant impacts due to inconsistencies would be identified as impacts within this section, as they are land use policy inconsistencies.

Land uses in the surrounding area consist primarily of single-family residential, a private school, and open space. Implementation of the proposed project would result in the development of 17 residential lots and one open-space lot. Given the similarity between the proposed project and surrounding land use types, the proposed project would be compatible with the surrounding land uses. In addition, the proposed project would be consistent with the General Plan land use designation in terms of the type of uses permitted (i.e., residential) and the levels of intensity. Given the similarity between the proposed project and surrounding area land use types, and consistency with General Plan land use designations, the proposed project is not expected to be incompatible with adjacent land uses or cause a substantial adverse change in the existing land use pattern of the project area. Although project implementation would represent land use intensification by developing a residential area that is currently undeveloped, this change in intensity is compatible with the land use mixture of the surrounding area. As such, impacts to surrounding land uses are expected to be ***less than significant***.

Hillside Development Ordinance

The proposed project includes Variance 02-10 which, if approved, would allow the proposed project to vary from the standards of the ordinance but be consistent with the existing surrounding development. Impacts due to inconsistencies with minimum lot sizes listed in the Hillside Ordinance would be *less than significant*.

Potentially Significant Impacts

Implementation of the proposed project would not result in any potentially significant land use impacts.

3.8.5 Mitigation Measures and Residual Impacts

No feasible mitigation measures are available to reduce Impact LU-1 to a less-than-significant level. Therefore, Impact LU-1 would remain ***significant and unavoidable***.

Significant and Unavoidable Impacts

Impact LU-1 **The proposed project would be inconsistent with adopted land use plans, policies, and regulations of the City of La Cañada Flintridge's General Plan and with Policies of the Hillside Ordinance.**

The proposed project would not be consistent with General Plan Policies 3.1 of the Land Use Element; 4.1 and 4.2 of the Environmental Resource Management Element; 4.1 of the Community Design Element; and Policies B, C, and H of the City's Hillside Ordinance. As no mitigation measures could reduce these inconsistencies, impacts associated with them would be ***significant and unavoidable***.

3.8.6 Cumulative Impacts

The cumulative context for the proposed project is provided in Table 1-1 (Cumulative Projects), and generally consists of single-home and appurtenant structure developments, with some City-wide capital improvement projects. Two larger developments—Annandale Canyon Estates and Artisan Square—are proposed in neighboring cities and would be irrelevant with respect to consistency with applicable plans and regulations of the City of La Cañada Flintridge. Consequently, these projects would not be considered as part of this cumulative analysis.

Other projects within the City would generally be consistent with General Plan policy and zoning requirements: where potential inconsistencies exist, many of these projects include requests for variances, as allowed by the City zoning code, to bring them into compliance. Consequently, none of the projects were determined to result in significant land use impacts, and these projects would not significantly contribute to a cumulative land use impact within the City.

In contrast, as described in Impact LU-1, the proposed project would have a significant unavoidable impact with respect to land use policy consistency, as a result of inconsistency with several policies in the Land Use, Environmental Resources Management, and Community Design Elements of the City's General Plan, as well as policies of the City's Hillside Ordinance. The policies with which the project is inconsistent were adopted for the purpose of avoiding or reducing significant environmental effects of development under the General Plan; consequently, inconsistency with these plans result in significant environmental effects that are described in the appropriate environmental issue area sections. The proposed project is the only pending project with significant land use effects even after consideration of variances and other sources of flexibility within City development regulations, and the property is the last large tract for which development is foreseeable. As a result, the entirety of the significant land use impacts within the City—and the significant impacts to resources of Citywide importance that result in part or in whole from these inconsistencies—would occur as a result of the proposed project and would, therefore, be cumulatively considerable.

3.8.7 References

La Cañada Flintridge, City of. 1994. *Comprehensive General Plan*, Land Use Element. Adopted April 1993.

La Cañada Flintridge, City of. Municipal Code Section 11.35, Hillside Development.

Los Angeles County Fire Department. 1996. LAC Fire Code, Section ___.

Spindler Engineering. 2001. Slope Density Study for Tract No. 53647.

———. 2003. Slope Density Study by Lot for Tract No 53647.